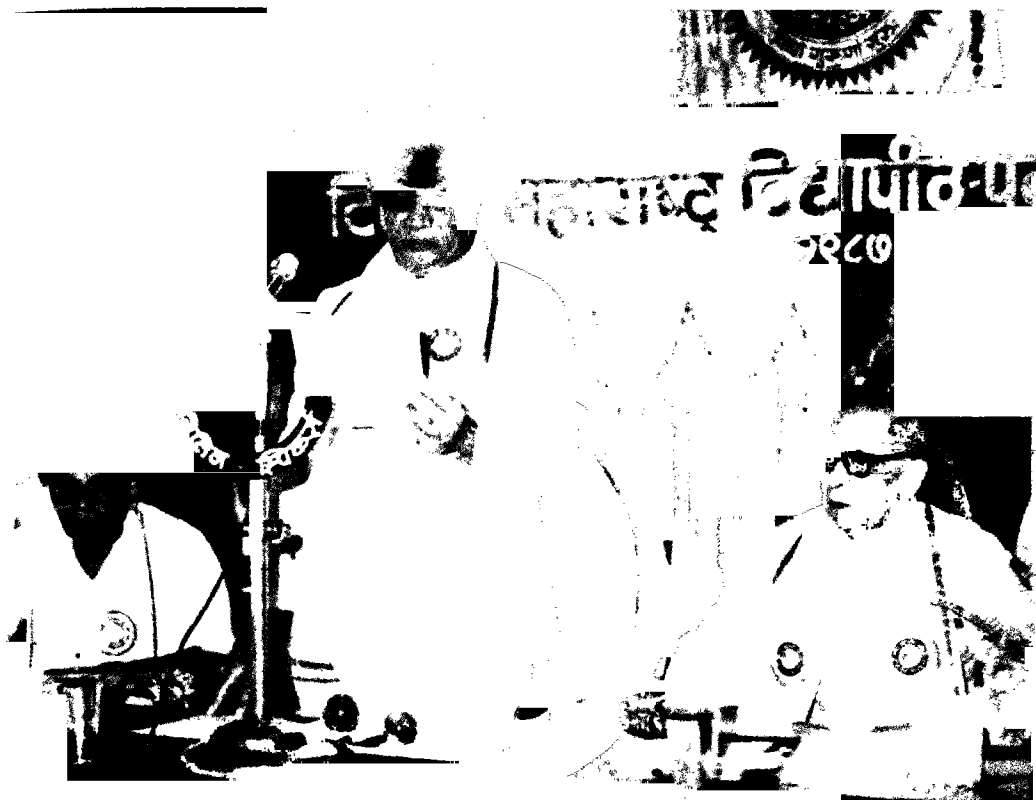


University News

MONDAY, APRIL 18, 1988

Rs. 1.50



Shri Shankarrao Chavan, Chief Minister of Maharashtra, delivering the convocation address at the annual convocation of the Tilak Maharashtra Vidyapeeth, Pune. Seated on his right and left are Shri Jayantrao Tilak, Chairman, Vidhan Parishad, Maharashtra and Prof. S.V. Kogekar, Vice-Chancellor of the Vidyapeeth respectively.

MINISTRY OF HUMAN RESOURCE DEVELOPMENT

(Department of Education)

TURKISH GOVERNMENT SCHOLARSHIPS, 1988-89

Applications are invited on plain paper from Indian nationals for the award of 4 Research Scholarships (Eight months' duration each, starting from 1 10 1988) offered by the Government of Turkey for 1988-89 in the following subject-fields

1 Architecture, 2 Geological Engineering, 3 Restoration and Preservation of Historical Monuments

AGE Must be less than 40 years on 1 10 1988 Age relaxable upto 2 years in upper age for Scheduled Caste Scheduled Tribe candidates.

VALUE 1,10,000 Turkish Liras per month This amount has been fixed taking into consideration only a single person's requirements

QUALIFICATIONS (1) Architecture Bachelor's degree in Architecture (2) Geological Engineering Master's degree in Applied Geology or in allied field (3) Restoration & Preservation of Historical Monuments Bachelor's degree in Architecture with 4 years experience in conservation of historical monuments

ESSENTIAL EXPERIENCE (For courses 1 and 2 above) At least two consecutive years' study teaching research practical experience as on 1 10 1988 in the subject-field selected after obtaining the prescribed qualifications Successful completion of M Phil Pre-Ph D course would be considered towards experience

PASSAGE COST Travel expenses from India to Turkey and back will be borne by the candidate or his/her sponsors/employers Subject to availability of funds, the passage cost may be met by the Government of India provided the candidate is eligible under the rules

NOTE 1 Only candidates who secured 60 % marks or more at the prescribed qualification level are eligible Where grades are mentioned, candidates must indicate the conversion formula adopted by the University Institution 2 Equivalent foreign degrees will be considered 3 Candidates who have already been abroad for study training specialisation research either on a scholarship or on their own are eligible to apply only if they have been in India for at least three consecutive years after return from abroad Applications of candidates who are abroad will not be considered 4 Upper age limit and experience can be relaxed by not more than three months at the discretion of Selection Committee in the case of brilliant candidates 5 Candidates should have good command of English or French or Turkish language Knowledge of Turkish language will be given preference 6 Candidates would have sufficient geographical knowledge of India and the donor country i.e Turkey 7 Applications of candidates who are abroad will not be considered 8 Employed persons must send their applications through their employers with 'NO OBJECTION CERTIFICATE' in time failing which applications will not be considered 9 Applications in subject field other than those specified above will not be considered 10 Candidates who do not possess the requisite qualifications need not apply 11 Applications which do not contain the Postal Order will not be considered

Candidates should apply for the above scholarship on a plain paper with a recent passport size photograph, furnishing the following details/particulars to the Secretary Ministry of Human Resource Development (Department of Education) External Scholarships Division, ES-3 Section Room No 516, B-Wing, Sansari Bhawan, New Delhi 110 001 by 6th May 1988

The applications received late will not be entertained

FORMAT OF APPLICATION

- 1 Name of the Scholarships Scheme
- 2 (a) Subject (b) Sub-subject
- 3 Name of the candidate (in Block Letters) with full mailing address
- 4 Date of Birth and the State to which the candidate belongs
- 5 Whether a member of SC ST or a tribal or aboriginal community? If so give full particulars
- 6 Academic record starting from High School Higher Secondary

Name of the University Board Institution	Examination(s) passed	Year of Passing	Division Class with position if any*	of marks obtained & Position, if any	Subjects taken
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*In case no Division class is awarded and only grading is done the conversion formula adopted may be mentioned

7 Details of Professional Practical Training and Research Experience, specifying the period and number of papers published, previous employment with name and date of employment if any

8 Nature of the present employment with date of appointment designation and the name & address of the employers

9 Have you been abroad? If so give full particulars of the country and the period Also mention the year and month of return to India

10 Proposed programme of study research training, specifying

(i) the work at present engaged in, (ii) nature and programme of study research desired (iii) future plans prospects after the proposed studies research, and (iv) how are these related to the technical or economical development of India?

11 No and Date of crossed Postal Order of Rs 5 - (Rs. 1 25 in case of SC ST candidates etc.) attached with the form

NOTE: Employed persons must send their application fully sponsored by the Employers However advance applications will be considered provisionally pending sponsorship by employers.

Place

Date

(Signature of the Candidate)

day 88/12

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IN THIS ISSUE

Excellence and Relevance in Education	
The Humanistic and Scientific Values in the Pursuit of Science	5
Convocation	
Tilak Maharashtra Vidyapeeth, Pune	10
News from Universities	
Why IIT Graduates Settle Abroad	13
Hyderabad Varsity to Offer New Courses	13
Course Offerings at the Indira Gandhi National Open University	14
Central Assistance for Anna University	15
Agriculture	
ICAR Summer Institutes	16
Sophisticated Instruments for HAU Scientists	16
AIU News	
Bahrain Secondary Certificate Recognised	17
Sports News	
Campus Fitness Programme	17
Current Documentation in Education	18
Theses of the Month	19
Classified Advertisements	25

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Excellence & Relevance in Education

S. Abdul Kareem*

The major thrust areas of higher education within the parameters of the New Education Policy are : equity, excellence with relevance and efficiency. As concepts, they have at their basis the philosophical views of the emergent society with perceptions and priorities felt by the people. Equity derives its strength from the premise of social justice. In our national perception education is essentially for all (NPE : 2.1). The present paper seeks to examine only the second thrust area, viz. excellence with relevance, broadening the spectrum within the ambit of higher education.

Excellence as a goal is laudable in itself. Being a quality trait, it is not easy to identify it and once identified, it is a task by itself to quantify a quality. If excellence in a particular educational activity like reading at the primary stage is to be quantified, one can assess the measure of excellence by evaluating the performance. The same may be possible in respect of writing or speaking. But to quantify the totality of a teaching process in its evaluation is an elusive affair. The shift from an individual to the institutional level necessitates the strengthening of academic supporting sub-systems, the lack of which stigmatizes the unit as mediocre and substandard.

Equity and excellence are more often irreconcilable. They tend to pull each other in opposite direction. Equality among people, of opportunity and access presupposes a dilution which otherwise is a quality norm confined to the few. It is generally held that if an asset or facility is made accessible to all without any restrictions, its quality would suffer.

Dr F.R. Leavis in his essay 'Mass Civilization and Minority Culture' did establish convincingly that culture is a minority creation. Medieval Italy had a few families like that of De Medici which were centres of excellence and seats of culture. Hence it is inevitable that excellence should create around itself an aura of elitism and respectability. Ben Jonson during the Elizabethan times sang :

*"In small proportions we just beauties see;
And in short measures life may perfect be."*

Prof. Schumacher sets the modern stamp of finality when he says :
Small is Beautiful.

In education, excellence may not always be a function of numbers only. It is possible there may be small colleges which apart from being non-viable, may have no excellence whatsoever in them while large colleges, despite their overflowing numbers, may yet deserve the reputation of being centres of excellence. Hence it is possible to achieve excellence in education with proper educational inputs which, among others, may be identified as teachers, infrastructural facilities, content of courses, teaching learning processes and the students. In respect of teachers to a great extent and in students to some, quality means the level of

capabilities and potentialities in terms of knowledge, skills, aptitudes and values which have as much a contextual relevance as universal which enables people to aim high and attain peak performance. Excellence as a value has no fixed upper limit. The attainment of one set of goals and ideals pushes it to a higher plane necessitating human endeavour ad-infinum. This love for excellence is an essentially human trait which knows no satiety.

Higher education gives unto itself lofty goals to socialize, sanitize, sensitize men. In fine, it is called upon to prepare men for work and life. The institutions will be expected to think through their goals, get them accepted and be accountable for them. They must develop the whole person. Learning is not the exclusive province of the mind or the intellect. It engages the whole person, the hand, the eye, the muscle and the brain. Learning is a continuous biological process that begins at conception and ends only at death. Hence it is a continuum. One must continue it life-long. If the institution responds to these goals as a collectivity in a positive way, it bids fair to achieve excellence.

With as many as 150 Universities and 5000 Colleges, 7 Central Universities, 5 IITs, IIMs, about 20 Regional Colleges of Engineering and a dozen Deemed to be Universities, higher education is as vast and varied as it is uneven. There is the need to put this massive mansion in order. The degree of obsolescence being high, there is the dire need to update the outdated data within its portals. New blood should flow imparting vigour and dynamism as never before. The requisite infrastructure is sought to be developed by strengthening libraries, laboratories, students' amenities by phased funding on settled guidelines. Most of the Colleges are already equipped with Colour TVs and Computers to streamline administration and strengthen teaching. New Management Systems with definite organisational structures, roles and responsibilities are being worked out to eliminate the accumulated deficiencies, plan-wise till about the 9th plan period coinciding with the closure of the 20th Century.

Autonomous Colleges

Of late academic excellence is sought to be injected through autonomous Colleges. The country has so far only 21 autonomous Colleges and the UGC has an ambitious plan of conferring autonomy on 500 Colleges in the Seventh Plan period. The affiliating system, being a hang over of the colonial past, is purported to

have come in the way of the progress and development in universities and is sought to be dispensed with the grant of a measure of autonomy. Autonomous colleges will be free to devise their own academic calendar of admissions, terms of sessions and vacations. They will be free to formulate their own syllabus and conduct their own teaching and examination and have the degrees awarded by the parent university with the name of the College recorded in the diploma. With an Academic Council and Board of Studies of their own with duly constituted Governing Bodies, the Colleges with qualified teachers can undertake experimentation and innovation in uncharted fields. The UGC will fund these schemes in a big way for the plan period.

It is a moot point how far this idea catches the imagination of educational administrators. Many an intending management has visited these academic shrines, mostly in Tamil Nadu to have a first hand appraisal of their functioning. The freedom that flows from autonomy may foster creativity and innovation. But there is a fear of adventurism and experimentation with the outcome almost uncertain. The institution to go autonomous should have their credibility well-established which otherwise may degenerate into unrestricted licence unacceptable in the society. The abrupt stopping of funding after the five years period may cause greater dislocation before the state government could take over the financial burden in its fold. The existence of quality and non-quality institutions may give rise to a new academic casteism.

Restructuring of Courses

Yet another major premise of excellence is the need for restructuring of courses (R.O.C.) stagnating for decades. In view of the growing demand of specialisation, it is felt proper to bring in the necessary measure of relevance, application orientation, flexibility and diversification and emerging employment opportunities, including self-employment. A standing committee was set up to finalise the guidelines which are specified below :

- (a) Foundation courses taking 20-25 per cent of the time to create awareness like history of the freedom struggle in India, Science in everyday life, Gandhian Thought.
- (b) Core programme with in-depth study covering 75-80 per cent of the time involving the main disciplines.
- (c) Applied studies/Project work/Field studies are to be incorporated as an integral part of the core programme.

- (d) **Extension work is integrated with the curricular to make courses relevant to the needs of the society.**

The combination of the core curricular could be as under:

- (i) **Physics, Mathematics & Instrumentation/Communication/Metallurgy/Computer Sciences.**
- (ii) **Botany, Chemistry + Horticulture/Pharmacy/Fertilizers/Food Technology.**
- (iii) **Economics, Commerce + Marketing / Rural Banking/ Cooperative Management.**
- (iv) **Economics, Political Science + Panchayat Raj.**

The University Grants Commission has come in a big way to support such programmes by way of grants on non-lapsable nature for 5 years.

Restructuring of courses as a step towards achieving academic excellence necessarily brings in the component of social relevance. The higher educational system should respond to the important aspect of human resource development by accepting the responsibility of providing trained manpower in skills to go into all the sectors of economy. Curricular contents prescribed with relevance to the social needs should also explore relevance in relation to what the student has already learnt earlier at the school so much so that relevance establishes linkages among School-learning, College-learning and social needs. The basic purpose of restructured courses is to introduce the student to applied aspects and to enable him to use his knowledge at least to become para-professional with middle level technician functions. The third subject of the restructured course is oriented towards field practical work thereby integrating the learning process by having it exposed to the field of work.

Extension

In addition to teaching (now termed teaching-learning process) and research, university education has developed a new dimension of extension. Extension is not to be viewed as a welfare activity for the deprived social groups but as a process of interaction with the society leading to valuable learning experience and as a means of making higher education relevant to the needs of the society and oriented towards a solution of existing problems. The university system should absorb the concept of "extension culture" as its integral component and a fair measure of time be allocated for the off-campus extension work through NSS, NCC, NAEP and PEC. This new dimension of extension has made possible yet another area of relevance-continuing education. Formal education has

generally proved to be segregating and fragmentative rather than harmonising and integrative. Continuing education is not merely furthering or refreshing information or skills but a process of achieving integration of knowledge with life or a process of rectifying the imbalances created by formal education in individual as well as community life. T. S. Eliot articulated these imbalances so vividly in the following lines:

*"Where is the life, we have lost in living
Where is the wisdom, we have lost in knowledge
Where is the knowledge, we have lost in information."*

The basic philosophy of continuing education is



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that it is a life-centred and life long process.

Passion for Change

Academic work gets the stigma of irrelevance when it beats a retreat to the rarefied pursuits of theoretical abstractions when the hour demands that it should enter the arena of praxis. Higher learning becomes relevant when research or teaching will yield insight into the nature of social reality that surround us. Members of the academia cannot purify the moral climate by pontificating in the classroom. They must enter the arena of action and get themselves posted on fronts as instruments of change. They must outgrow the ivory tower attitude. It is not enough to merely understand the world. One must develop a passion for changing it. The dichotomy between fundamental and applied disciplines has been more artificial. With nearly three decades of developmental planning, poverty stares us in the eye everywhere. Relevance is more often an expression of broad societal concern and education must deal with not merely subject-oriented disciplines but problem-oriented issues. The Gandhian system of education had emphasised the joy and excitement of doing things while learning. As Prof. A.N. Whitehead said, "In the process of learning, there should be present, in some sense or another, a subordinate activity of application. In fact, the applications are part of the knowledge. For, every meaning of things is wrapped up in relationships beyond themselves. Thus unapplied knowledge is knowledge shorn of its meaning." We can ill afford to ignore ideals which Nehru placed before the university community when he said, "A University stands for humanism, for tolerance, for reason, for progress, for the adventure of ideas and for the search for truth. It stands for the onward march of the human races towards our higher objectives. If the universities discharge their duties adequately, then it is well with the people. But if the temple of learning itself becomes a home of narrow bigotry and petty objectives, how then will the nation progress or a person grow in stature?"

In the entire system of education, the role of teacher is pre-eminent. In fact, he is the live-wire of the system though some deadwood can easily be discounted. The Education Commission (1966) had outlined, 'Of all the different factors which influence the quality of education and its contribution to national development, the quality, competence and character of teachers are undoubtedly the most significant.' Dissemination of knowledge through teaching, creation of new knowledge through research,

forging links between the growth of knowledge and its application are his major areas of preoccupation. What contributes to avenues of excellence in a teacher is his commitment to his profession through his personal example and practice of values like honesty, integrity, sense of responsibility and compassion. It is imperative that the teachers have a self-imposed code of ethics to guide them in their professional competence which eventually may foster excellence. It is equally necessary that they are made a part and parcel of institution planning for effective implementation of the educational priorities. 'Schedules of inspection must give place to schemes of introspection' in the words of Prof. V.V. John. With self-regulation should go self-evaluation, peer-evaluation and peer-disapprobation.

Excellent teachers relate their teaching with what has already been learnt by the students. Academic Staff Colleges mooted by the new education policy are designed to cater to teacher orientation programmes. More than anything, the teachers must have a positive attitude to identify the aptitudes of the students so as to help them grow and prosper. Reviewing the book 'Three Score and Ten' by Asok Mitra, Prof. Amrik Singh wrote (Deccan Herald Oct 18, 1987) :

"The core of this process of one lamp lighting another comes from the fact that teaching in essence, is an act of joy. It is not a chore imposed upon someone; on the contrary, it is a liberating and creative act. It releases something within the teacher and gives him the feeling that nothing is more rewarding than to be able to give".

Looking at what is happening around, he laments that the desire to give has died while the desire to grab has become a burning passion. With Asok Mitra, Amrik Singh fully concurs with following statement "I have rejoiced when my pupils excelled me". Only the culture of excellence can foster this attitude of magnanimity.

Island of Excellence

In the oceans of mediocrity, there have been islands of excellence like the IITs, the IIMs and the National Laboratories. There is symbiotic-relationship between higher education and research, each help sustain the other; otherwise each will lack in dynamism and will eventually grow dull. The vital component of

(Continued on page 9)

The Humanistic and Scientific Values in the Pursuit of Science

J.N. Kapur*

Prof. J. N. Kapur expressed his anguish at the erosion of basic humanistic and scientific values in science education and research while delivering the Eighth J. P. Chatterjee Award Lecture at the 75th Indian Science Congress (Platinum Jubilee) Session at University of Poona, Pune recently. He opined that it was still possible to realise the goal of 'divinity of man' suggested by Dr. Chatterjee if we put our 'scientific house' in order. He reiterated Dr. Chatterjee's plea for the fusion of scientific and humanistic cultures and said that unless education and research in science was pursued in the true spirit of science, growth in science will not mean growth in wisdom and character. We are pleased to publish excerpts of this highly inspiring address for the benefit of our readers.

Some Basic Theses

● Every scientist has to be a true humanist and a great lover of mankind. He should have a great vision for mankind, in which there will be no poverty, no hunger, no disease of the mind or body, no suffering, no greed, no hatred, no violence; in which there will be universal love and fellow feeling and in which everybody will be continuously learning from womb to tomb and will be enjoying the learning. His love for science should also be the result of his love for humanity.

● Every scientist shall also be a true scientist. He should imbibe all values of science like originality, creativity, innovation, impartiality, fairness, integrity, objectivity, excitement and passion for new knowledge, love for truth and so on, not only for his scientific pursuits but for all his actions.

● If a scientist tries to follow these values in the scientific work, but is otherwise superstitious, unfair, dishonest in his other actions, this lack of integrity in other actions will sooner or later, affect the integrity of his scientific work. A scientist has to be ruthless in his observance of basic ethical scientific values, in case he wants to remain a true scientist.

● In scientific research, the ends are very noble and the means should be equally noble and pure.

*Hon. Visiting Professor, IIT, Delhi and University of Delhi.

● There is a pollution of corruption, nepotism and favouritism all round us. A scientist should not succumb to it, but he should fight this evil with all his might. The first step is that he should observe all the basic and ethical and scientific values scrupulously in all his scientific work. The second step is that he should see that all the values are observed with no exception, in the management of scientific institutions. Hopefully, this step will help in removing pollution in the atmosphere outside scientific laboratories also.

● If science grows tremendously, but the scientific spirit decays and the scientific values decline, all will not be well for mankind and all will not be well even with science, since scientific values are even more important than science itself.

● A scientist should defend scientific values and his own selfless passion, devotion and dedication to science, with all the strength at his command

● Scientific research is becoming Big Business and just like any other Big Business, it tends to be exploited by self-seeking individuals for whom Science is not a Search after Truth, but is only a means of getting unfair advantage over others. A scientist should see that the Big Business of Science is conducted according to the highest possible ethical standards.

● There are thousands of dedicated scientists in our country and in the world, but there are also a few pseudo-scientists who want to exploit the Science System for their narrow personal ends, their designs

have to be foiled in the beginning by an enlightened public opinion.

Values-Oriented Science Education and Research

The erosion of human values in our educational institutions has been a matter of great concern. A number of our educational thinkers have expressed their great concern about it. Two National Symposia have been held to discuss ways and means to restore human values in our educational system.

There is a similar erosion of scientific values in our scientific research. The Society for Scientific Values is doing excellent work in creating a public opinion against the unethical practices in scientific research. All the crusades launched by dedicated individuals and groups deserve all the support both in speech and action.

We discuss some of the unethical practices which are causing tremendous damage to science education and research in our country.

Erosion of Scientific Values in Science Teaching

Some unscientific values are transmitted to the students in school science laboratories themselves. They are encouraged to cook results. Students are asked to verify some scientific results with imperfect instruments and then are encouraged to get perfect agreements with theory by manipulating the observations. Teachers themselves declare: "What does it matter if a few observations are changed to get good agreement?" They do not realise that through this practice, they are teaching forgery, they are teaching something against which science has always fought. They may be teaching some facts of science, but they are killing the Spirit of Science.

Students sometimes do not perform experiments themselves, but copy the results from others' practical notebooks. Sometimes teachers themselves encourage students to do so, so that the authorities may get the impression that all the students have done all the experiments. This happens usually when the equipment is not sufficient for all the students to perform experiments.

It is not uncommon that in many schools and colleges, equipment for performance of only 40-50 per cent of the experiments prescribed by the Board or University is available. The teacher requests the examiner to examine the students out of only those

experiments and the examiner is given a party at the expense of the examinees. Many examiners of practical lessons are approached by parents, teachers and otherwise decent citizens to do favours to some students. One wonders whether in this way we are 'educating' or 'miseducating' our students in science.

Even the learning of science is not through the discovery process, but by committing some facts to memory, without understanding all the implications of those facts.

To crown all this is the final murder of the scientific spirit when mass copying takes place in public science examinations.

It is important that the government should see that every science school and college is equipped with all the necessary equipments for all the experiments prescribed by the examining body, that the school managements and teachers see to it that the students perform all the experiments themselves before they appear in the examination, that the 'cooking' of result is regarded as a scientific crime which should be looked down upon by every student and teacher and science examinations are conducted so as to discourage cramming and copying.

One of the basic aims of teaching Science is to teach the Scientific Spirit, the Scientific Methods of Enquiry and the Process of Science. These are even more important than the facts of science. Every lesson in Science should emphasize these basic values of science.

Ultimately it is only a strong public opinion of teachers, students and parents which can restore scientific values of science.

Erosion of Scientific Value in Scientific Research

Manipulation of results of scientific experiments to make them fit certain theories is not an uncommon practice in research. I realised this some years ago when as a vice-chancellor, I was present in one Ph.D. viva-voce examination of a Zoology candidate. He showed some slides of eggs some of which were apparently lying in heaps. When I asked him how he had counted those eggs, he said casually, "I ignored all of them." In this way, he claimed that he had disproved an earlier theory. What was surprising was that his supervisor supported him by asking immediately, "If he could not count them, what else could he do?" This illustrates the non-scientific value of taking the

easy convenient path rather than the correct path which may be difficult

I found a similar case in a medical thesis, when the candidate came to me to get my help in the statistical analysis of his data. I was surprised to find that all his entries were in terms of even numbers. When questioned, he told me that he was to undertake one hundred case studies, but he could get only fifty patients. His supervisor therefore advised him to multiply all the entries by two. This type of manipulation is quite common in some social sciences theses depending on results of surveys, in cases where very few people reply to questionnaires sent by investigators.

Many persons become Ph.D.s in science by following completely unscientific procedures.

Another unscientific or unethical practice is noticed in the names of authors of research papers where many persons who have nothing to do with the actual research in the paper are shown as authors. In some laboratories the name of the head of the laboratory and the name of the head of a group occurs in every paper sent from that group though these persons may not know even the A.B.C. of the papers. The claiming of authorship of papers which one has not written is completely unscientific and unethical, but sometimes this practice leads to some such persons being dubbed as great scientists and their winning prestigious national awards.

Another such similar unethical practice arises because some universities insist on an internal supervisor being associated with a supervisor external to the university system. The external supervisor does all the guidance, but the internal supervisor who knows nothing about the theses also gets the credit. Some persons become professors on the basis of the fake research guidance experience and even examine theses in the subjects in which they have provided this fake guidance.

Other unethical practices include (I) publishing of unrefereed papers by charging "page-charges", (II) appointment of 'convenient Ph.D. examiners', (III) examination of Ph.D. theses by persons not working in the fields concerned, and (IV) yielding to political and other pressures in faculty appointments.

It appears that many persons engage in scientific research not for the sake of love of science or love of truth or the excitement that scientific research alone

can give, but for the sake of undue advantages received. This explains the sharp decline of research productivity of a person after getting a Ph.D. degree or after becoming a professor.

Science as Big Business

Some year ago my daughter got an offer of a fellowship from a professor in Canada for research in physiology. To see his credentials, I went to the medical college library, went through Medical Science Abstracts and was happy to find that the professor was writing, on an average, twenty-five papers per year in good journals. As such I gave my daughter permission to go and work under his guidance. After a year I went to Canada and I was invited by him to dinner. I naturally congratulated him on his research output. He hesitated for a moment and then confessed 'Most of the papers you saw were written by me. I got grants of a few million dollars every year from the government. I gave fellowship to bright students. I buy costly equipments and I let the students work on problems considered important by the government funding agencies. They write research papers, write my name on these papers so that I may get more grants and they may have no financial problems. I go to the laboratory only when new equipment is to be installed. This was not always the situation. Eight years ago, I used to spend sixteen hours a day in the laboratory and I was doing first-rate research, but I found that the credit for those papers was going to my boss who was always the first author. I then decided to become a science manager and I succeeded. I sometimes have a guilty conscience and I feel I was happier when I was an active scientist.'

This is the story all the world over. When Science in India was on a small scale, most of the scientists worked in their laboratories. Now that science in India has become a large scale affair, many of them have become managers of big science, control large funds and have praises and prizes showered on them. The Mathews effect becomes operative viz "More power will be given to those who have large powers and from those who have small powers, these will also be taken away".

Mighty governments place large funds at the disposal of the big science managers and ask them to achieve results consistent with their aims in peace and war. These managers then give contracts to smaller managers who are their friends and whom they know and trust. The pure scientists who does

not want to spend time in getting and managing funds, works in his laboratory with relatively smaller resources. In fact every scientists has to spend some percentage of his time in getting funds and this percentage may vary from five per cent to ninety per cent.

Science as an Industry

Whether one likes it or not, Big Science is a reality today. Scientific knowledge is sought to be manufactured in the same way in which other more tangible products are manufactured. There is a public sector and there is a private sector. There is a large scale science industry and there is a small scale science industry. The small scale industry sometimes acts as auxiliary to large scale science industry. Fortunately there is still some place for individuals with bright ideas, but they are also being encouraged to group together.

Science as a Profession

In scientific industry human beings play a major role and machines have still not become dominant. However, the role of sophisticated scientific equipments, computers and robotics is increasing and the role of the individual scientist is decreasing. Science is however still a profession and peer recognition is still a major motivation for scientific research. There are however signs already that a politically powerful scientist may receive more honours than a scientifically powerful scientist and if this trend continues, science as a profession may decline. Moreover group efforts and team efforts are becoming more important than individual efforts and in this case recognition is also given to groups and teams. The groups are however identified by the names of their leaders and the leaders may be those persons who get funds for the group rather than those who really do the work.

Science and Religion

Sometimes man worships science in the same spirit in which he worships gods and goddesses. He builds large temples for science, installs costly equipment there and prays for results. He is even tolerant of irreligious practices in temples and of unscientific practices in science laboratories. However, unless the priests in a temple are deeply religious and unless the devotees go there for worship of deity and not for asking for undue advantages over others, no progress in true religion takes place. Similarly unless the scientists in a laboratory are truly dedicated to science and are not interested only in getting undue advantages over others by cornering costly equipment, no progress in science can take place.

How is Science Doing ?

Science is doing extremely well. For the last hundred years, it has been growing exponentially with a doubling period of about ten years. This means that if we had one unit in science in 1900, we had two units in 1910, 4 units in 1920, 8 in 1930.....256 units in 1980 and we shall have 512 units in 1990 and more than 1000 units in the year 2000.

This means that in the year 2000, we shall have about 1000 times as much science as we had at the beginning of the century. This also means that 99.9% of the science we have today has been created in this century and that 99% of the scientists who ever lived have lived in this century. This also means that in order to keep up-to-date with the explosion of knowledge a scientist has to work very hard indeed.

The exponential growth follows from the mathematical model : rate of growth of science at any time,

$$= k \text{ (amount of science at that time)}$$

The constant k depends on the investment of funds and the dedication of the scientists. If developing countries have to catch up with the developed countries, they have to increase their investments and dedication of their scientists significantly, otherwise the gaps between developing and developed countries are going to increase.

The doubling period applies to all factors viz the number of Ph D s, books, research papers, journals, funds spent, number of scientists and so on. For the number of scientists, the doubling period cannot go on indefinitely because the doubling period of the human population may be 25 years or so and if the doubling period of scientists is ten years or so, it is easy to see that one day there will be more scientists than human beings. This can happen only if we have robot scientists and machines with intelligence as good or better than that of human beings. This might as well come out to be true !

The Impact of Computers and Informatics on the Pace of Scientific Discovery

The availability of knowledge-based simulation techniques, electronic laboratories, electronic libraries, vast knowledge-bases stored in computers, decision-support systems, computers capable of proving theorems and discovering patterns in complex situations, computer-controlled manufacturing systems,

robots, etc., will vastly accelerate the pace of learning and research. As Dr Raj Reddy said in his recent convocation address at IIT, Bombay, "Computers and communications can truly revolutionise the nature of research and education in the twenty first century. Each one of us can have a personalised intellectual assistant which could use voice and vision for man-machine communication, tolerate errors and ambiguities in human interaction with machines, provide education and entertainment on a personalised basis, provide expert advice on a day-to-day basis, make vast amounts of knowledge available in an active form and make ordinary mortals capable of superhuman tasks, leading to new discoveries and inventions at an unheard of rates."

Science and Man

I was asked to speak on some aspects of Science and Man. On the one hand a great scientific future beckons mankind. Science may grow a thousand fold in the twenty first century. Every one will have a chance to attain great intellectual heights. The brilliance of a thousand Suns of Knowledge will be available to us.

On the other hand, the Scientific Spirit characterised by objectivity, rationality, integrity, impartiality, fairness, tolerance, excellence and truth seem to be declining in science itself. Unless we reverse this trend and pursue Education and Research in science in the true Spirit of Science, Growth in Science will not mean Growth in Wisdom and Character and the net result may be that man may be much further away from divinity than he is to-day, if man survives at all during the next century.

As such we should be ruthless in insisting on scientific values in all Education and Research and in fact in all walks of life. These values are ultimately the same as the great humanistic values. Without these values man is doomed, with these values he has a great future.

The growth of Science is going to change the relation between Science and Man. The nature of this change will depend on our values and our wisdom.

Let each one of us do some soul-searching and do only those actions which are worthy of the great values of science and none others. □

Excellence & Relevance in Education

(Continue from page 4)

research in higher education apart from creating scientific manpower will help maintain the industrial competitiveness of the country. Basic research, as contrasted with the applied variety, has a new kind of relevance in creating a hierarchy free atmosphere of freedom, of an enquiry with an accent on multidisciplinary approach. Research activity warrants co-operation and collaboration breaking the barriers that have all along divided the academic community. It is but proper that industry establishes campus labs of their R & D wings which will be a shot in the arm for education and research which bids fair to be cost-effective.

Excellence and relevance go hand in hand. Linkages between research establishments and user agencies could be overseen by state agencies and apex bodies to safeguard, pursue and enlarge the interest of research in the institutions and establish its relevance to the nation. The nexus between the ideas and concepts on the one side, and problems and issues on the other may generate a healthy interaction between thinkers and practitioners. This may necessitate what Prof A N Whitehead calls a clash of ideas, nay an adventure of ideas, which is an opportunity unlike a clash of personalities which is a disaster.

Schemes of collaboration and networking necessitate a measure of mobility. Provisions of transfer and

deputation from institutions to agencies and vice versa spell health and sanity to the work undertaken. Inbreeding has more often been the cause of campus unrest. Inter-regional mobility establishes the universal character of a university without any dogmatic consideration of domicile or nativity. The students enrolment and the faculty strength must reflect the all India character of higher education which fosters feelings of national integration.

Excellence of an institution of higher education is a function of many facets. It involves institutional consolidation, fostering of autonomy, restructuring of courses with relevance, orientation of teachers, strengthening of research, provision of infrastructural facilities for students—all geared to ensure that the system of higher education will work more efficiently. Institutional planning, plan implementation, decision making must be free, and of participatory nature befitting a vibrant democracy like ours. In our national perception, human beings are positive assets and precious national resources. Our endeavour should be to design a strategy for the development of human resources through education. The challenge of education will have to be met by the collective endeavour of the teachers and students as much with earnestness and rigour as with freedom and creativity. □

Tilak Maharashtra Vidyapeeth

Hon'ble Shri Shankarrao B. Chavan, Chancellor of Tilak Maharashtra Vidyapeeth and the Chief Minister of Maharashtra, paid handsome tributes to the Vidyapeeth when he observed: "Work oriented education was introduced here sixty years ago though it has received recognition only recently at other universities". Shri Chavan was delivering the Convocation Address at the annual convocation of the Tilak Maharashtra Vidyapeeth (Deemed University). We are pleased to carry excerpts of this highly informative address in which Shri Chavan traced the history of the Vidyapeeth and described the vicissitudes it passed through till its emergence as a Deemed University.

This university was founded on May 6, 1921 to commemorate the contribution of the Late Lokmanya Bal Gangadhar Tilak to national education. Tilak was convinced that the British educational system prevalent in India at that time was solely directed towards the creation of a cadre of educated workers to serve the administrative machinery of the foreign rulers. The British Government had little concern about the values of patriotism, national pride, social commitment and self reliance. "The

dignified members of the society. Educationists working here in Tilak Maharashtra Vidyapeeth meticulously followed this policy right from its inception. Work oriented education was introduced here sixty years ago though it has received recognition only recently at other universities

Curricula in the faculties of Arts, Commerce Engineering and Ayurvedic Medicine were framed in the beginning and teaching of the subjects also commenced. Even

Convocation

only way to impart national education was the establishment of a National University," thought Lokmanya Tilak and our university was founded in deference to his thought and desire. Avoiding the defects of the prevailing educational system, this university strove towards making the youth nation-minded, self reliant and able to overcome all obstacles in their way. The student community was not expected by the nationalists to be merely job-seekers after their graduation but be free and

postgraduate training was available in some branches. A number of educational institutions outside Pune sought affiliation to this university. The teachers working here and students too were dedicated to the cause of nation building and many of them actively participated in the National Movement and the freedom struggle. Many of the national institutes had to be closed because of the wrath of the British power. In 1932 educational activity came to a standstill as the institutes imparting national educa-

tion were declared illegal. In spite of this Tilak Maharashtra Vidyapeeth continued its noble work of education with a few changes suitable to the changing needs of society.

Conscious of the relevance of village uplift in the nation building process the university prepared a curriculum for teaching this subject and began practical work in village organisation in the vicinity of Pune to train young workers in this field. When Gandhiji propounded the philosophy of Basic Education this university supported it fully and conducted Basic Education programme in a number of primary schools. A centre for training of teachers of Basic Education was also run by this university. In 1938 an act concerning indigenous system of medical education was passed by the Government of Bombay and this university took up the responsibility of conducting professional examination for the courses in Ayurvedic medicine for students from all over Bombay Presidency. The delegation of such an important task by the British rulers to a national university speaks volumes about its integrity and diligence in the field of education.

From 1932 to 1947 Tilak Maharashtra Vidyapeeth was continually engaged in adult education, literacy drives, Basic Education, courses in Ayurvedic Medicine, and production of technical and scientific books in Marathi, thus catering to the various educational needs of the community at large. The Vedic Sanshodhan Mandal started by this university for advanced research in vedic studies carried on its activities without interruption.

The conduct of public examinations in Sanskrit, English and Mathematics for school going

children gave a boost to Tilak Maharashtra Vidyapeeth's work in the field of higher education. Shri Balmukund Sanskrit Mahavidyalaya was started by Tilak Maharashtra Vidyapeeth for higher education in Sanskrit. A novel method of teaching Sanskrit, combining the traditional and modern techniques was evolved and students passing the tests were awarded Shastri degrees. The state authorities approved the award of these degrees. These degrees were also granted equivalence with degrees conferred by other universities established by law. This college teaches courses in Sanskrit language and literature from the school level to the advanced postgraduate level.

In 1969 a unique scheme of imparting training in Social Sciences at the university level was introduced with the setting up of Nehru Institute of Social Studies. This institution started a post-graduate course 'Parangit' in social sciences with emphasis on the interdisciplinary approach. Tilak College, which had to be closed down during the years of our struggle for independence, was started again and two new diploma courses, one in Salesmanship and the other in Office Management were instituted. All these programmes received approbation from leaders in the field of education. Many a research project had been undertaken by Tilak Maharashtra Vidyapeeth in the fields of Social Sciences, and Sanskrit studies. Many of the publications of this university have proved to be significant and original contributions to various fields of learning.

This university believes that it has a stake in the process of social change and so it has undertaken the work of conducting short term courses in Yoga, Ayurveda, Library Science, and Practical accountancy for women which will fulfil the

educational needs of society in years to come.

Seven non-agricultural autonomous universities are functioning in the State of Maharashtra at present. They are working in the sphere of higher education following the conventional curricula. The courses offered in these are available only to those students who have attained certain academic standards in formal education. A large number of the student community finds itself excluded from this small group, and is thus deprived of the opportunity for higher education. The number of students desirous of higher education has been growing rapidly since independence and though new colleges have been started, the craving of the masses for higher learning cannot be satisfied. A considerable number of young students is deprived of higher education because of economic and family constraints. A few of these obtain higher degrees as external students but they have to depend entirely on their individual effort for want of guidance. Being aware of this felt need, Tilak Maharashtra Vidyapeeth has started courses in higher education for those who were denied the opportunity. These courses may help adult learners

barred from the portals of higher education like leaders from rural areas, labourers, workers and women students in the acquisition of higher education. But, we have to go a long way in this direction.

While catering to the various needs of society and planning new undertakings suitable to the demands of the age, Tilak Maharashtra Vidyapeeth had to take upon itself a new responsibility when the University Grants Commission conferred on it the status of a deemed university. This has opened new vistas of growth for Tilak Maharashtra Vidyapeeth. The Union Government has envisaged a New Education Policy and the state is geared up for its implementation. College development, realignment of college education facilities, emergence of a few select colleges into autonomous ones, restructuring of the pre-university courses, training of teachers, qualitative improvement in research work, and establishment of a rural university are some of the tasks in the field of higher education. Tilak Maharashtra Vidyapeeth which carried on its noble work even in the days of British rule and engaged itself in the work of social development should come forward to implement some of these tasks. □

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REGISTRAR

Why IIT Graduates Settle Abroad?

A study recently conducted by IIT, Bombay reveals that lack of adequate opportunities for career growth and living conditions at home coupled with the poor industrial climate in India are possible push factors for emigration from the IITs. Brain drain (BD), as the study points out, forms part of the flow of high quality manpower (HQM) from the less developed countries to the developed countries (DC), a phenomenon which even the United Nations has reported.

The most significant impact of brain drain on the underdeveloped country is that its manpower which feeds the technology base of the developed countries, makes for a 'reverse flow of technology'. When less developed country tries to 'purchase' technology it cannot do so, since it has inadequate knowledge of promotion in the absence of any HQM available domestically.

Quoting from the journal of Higher Education and Science Age, the study states that Indian HQM abroad experiences the three phases. The golden period of the graduate student under the neo-colonial patronage of the western professor, the middle phase of conflict over whether settled for a safe and unexciting professional life, or fight a vain struggle resulting in bitterness over poor scientific recognition. Thirdly, the mature professional life for either category with attendant restlessness or frustration.

The student is further informed that while science is universal, the institutions of science are not. While Indian immigrants are encouraged to be "bright boys" they are not expected to be "powerful and trend-setting men", showing plainly that the western scientific

establishment is more than fair to its most outstanding imports.

"Quite unacceptable", say some of the IIT graduates, who question the wisdom of staying back in India, when high specialisation study programmes are available without any obstacles and "politics" in US universities. The aid available in an American university is by far many times higher than a stipend for a postgraduate engineering programme in India.

Better scientific establishments with more freedom for individual growth and performance together with better economic incentives would keep them in the country itself.

One of the common complaints from the graduates is that there is little emphasis on domestic research and development efforts, and a high ranking technologically qualified who joins a "reputed" organisation is confined to translating imported technology upto implementable forms.

Poona Varsity Plans Distt. Sub-Centres

Poona University has drawn up elaborate plans for decentralisation. It proposes to establish district sub-centres at each of the five district headquarters. These sub-centres will be delegated with some administrative, financial and academic functions. Dr. V.G. Bhide, Vice-Chancellor, said each of these centres could gradually grow and develop into a full-fledged university.

Dr. Bhide said to reduce rigidity in the education system, the national policy on education had recommended giving of autonomy to

colleges. The university would soon process cases of 14 colleges which had applied for autonomy. He said autonomy would be granted essentially to improve the standard of teaching and changing the evaluation system and it must be earned on the basis of academic programmes the colleges wished to pursue.

The University also plans to conduct several skill-oriented courses in the evenings and on week-ends for the benefit of the students. The university was making a list of such courses and laying down syllabi for the courses. After the completion of such a six-month course, the student would be entitled for a certificate, while those completing one-year courses for a diploma. There would also be qualitative difference in the certificate, diploma and graduate level courses.

Hyderabad Varsity to Offer New Courses

The University of Hyderabad has decided to establish a new school, "Sarojini Naidu School of Performing Arts, Fine Arts and Communication." Besides, two new centres, a "Centre for Applied Linguistics and Translation Studies" and a "Centre for Comparative Literature," would be started from the academic year 1988-89.

The Sarojini Naidu School of Performing Arts, Fine Arts and Communication would offer post-graduate courses leading to M.A. in four subjects, namely, Dance, Theatre Arts, Painting and Communication (audio-visual media, TV and Radio). The courses would be full-time spread over four semesters.

The Centre for Applied Linguistic and Translation Studies would offer M. Phil. and Ph.D. program-

mea in Applied Linguistics with special reference to translation. The centre would be engaged in developing translation manuals and materials for training professional translators in major Indian languages and English. The Centre for Comparative Literature would also offer M.Phil. and Ph.D. courses from the next academic year of 1988-89.

Vocational Training Centre for Bombay

A vocational training centre is

likely to be set up in Bombay under the auspices of the Indo-German Chamber of Commerce. It is modelled on the German system of "dual education."

Under the system, practical "on-job training" and theoretical education in the vocational school are closely intermeshed to provide a praxis-oriented, through training for young executives. The system is stated to be working well in Germany.

Poona Open University

The Poona University is reported to have decided to establish an Open University and Professor Ram Takawale, former Vice-Chancellor has been entrusted with the implementation of the project.

Under the scheme, the three major wings of the university—adult education centre, continuing education centre and the educational media research centre would initially be amalgamated to become a

Course Offerings at the Indira

Sl. No.	Course	Duration	Maximum Completion period	Min. Age	Minimum qualification	Minimum experience
1.	Diploma in Management Module-I leading to Master's degree	1 year	4 years	25 years	Graduate OR Non-graduate	Three years supervisory or managerial OR Six years supervisory or managerial
2.	Diploma in Distance Education	1 year	4 years	Nil	Master's degree in any subject OR Any professional degree e.g. B.E., L.L.B.	Nil
3.	Diploma in Creative Writing	1 year	4 years	25 years	Nil	Nil
4.	Certificate Course in Rural Development	3 months	3 months	N.A.	Meant for Block Development Officers of North Eastern States & State of Rajasthan	
5.	Bachelor of Arts/Commerce	3 years	8 years	Nil 20 years	for 10+2 for Non 10+2	Nil
6.	Certificate Course in Food & Nutrition	6 months	2 years	20 years	Nil	Nil

nucleus for the proposed open university.

According to the draft proposal for the open university, educational courses in subjects which are regularly taught in the university would not be covered by the open university. But informal and socially-oriented educational courses would be introduced by the open university. Short-term vocationally-oriented courses, diploma and degree both, would form the core of the new scheme

The new university is expected to start functioning from the coming academic year.

Central Assistance for Anna University

The Union Ministry of Human Resource Development have sanctioned a grant of Rs. 40.00 lakhs to Anna University for meeting the non-recurring expenditure during 1987-88, for modernisation and removal of obsolescence in mechanical Engineering Lab of the College

of Engineering, Automotive Engine and Vehicle Testing Laboratory of the Madras Institute of Technology, and Lab. Studies and Workshop of the School of Planning and Architecture.

Renal Sciences Facilities at Sanjay Gandhi Institute

The Sanjay Gandhi Post-graduate Institute of Medical Sciences (SGPGI), Lucknow, is reported to be developing one of the best facilities of renal sciences which will

Sanjay Gandhi National Open University

Advertisement element release in	Admission Criteria	Commence- ment	Fee Break-up	
August	On merit	January	Registration fee Programme fee (Rs. 750 for all the five courses) Exam fee (Rs. 100 for all the five courses)	Rs. 15 Rs. 150 per course Rs. 20 per course
August	On merit	January	Registration fee Programme fee (i.e. Rs. 100x5 Rs. 500 in total) Examination fee (i.e. 20x5)	Rs. 15 Rs. 100 per course Rs. 20 per course Rs. 100 in total)
August	Short answer test	January	Registration fee Programme fee (Rs. 750 for all the five courses) Examination fee (i.e. 20x5 Rs. 100 for all the courses)	Rs. 15 Rs. 150 per course Rs. 20 per course

Depending upon sponsorship from the State. No fee

April	On merit (10+2)	January	1st Instalment 11nd Instalment	Foundation Courses Rs. 180 Rs. 180 + 120	Elective Rs. 250 Rs. 230
August	Entrance test in September (non 10+2)	August	Entrance test Preparatory courses	Rs. 25 Rs. 120	
April	Test	August	—		

cater to the needs of millions of people suffering from renal ailments in Uttar Pradesh and neighbouring States. According to Dr. Mahendra Bhandari, Professor at the Urology Department, the "shock therapy machine" would soon be acquired which 'destroys the renal stones in minutes'. This machine costing about Rs. two crore, can pulverise the stones without any surgery. There are also no chances for recurrence of this stones, he pointed out.

School of Economics & Behavioural Sciences

A Centre of Excellence known as the "School of Economics and Behavioural Sciences" has been created at Bhopal University with the financial assistance from the State Government. This Centre which includes the three teaching departments of Economics, Psychology and Sociology" will have interdisciplinary teaching and research.

The University Grants Commission (UGC) has also sanctioned to the University Rs. 10 lakhs as special assistance for the purchase of books and journals and Rs. 40 lakhs for the purchase of equipment in different teaching departments of science and humanities in addition to the VII plan allocation for the University.

Fellowship for Dr. Beg

Dr. Mohammad Hanif Beg, Lecturer in Cardiothoracic and Vascular Surgery, J.N. Medical College, Aligarh Muslim University has been elected to the fellowship of the International College of Angiology, New York (USA). This is in recognition of Dr. Beg's performance comprising over 725 major operations which include nearly 200 closed heart operations and about 1200 minor thoracic operations.

He has also fifty papers to his credit published in various national and international journals.

News from Agril. Varsities

ICAR Summer Institutes/Short Courses

The Indian Council of Agricultural Research (ICAR) has decided to hold 25 Summer Instt./Short Courses in the field of Agriculture Sciences during Summer vacation of 1988 for the benefit of teachers and specialists. The main objective of this inservice training course would be to communicate the latest technological advances in the subject and provide the necessary orientation to teachers and research workers of agriculture/agricultural engineering/Animal Science/Fisheries so that they are able to relate the teaching of their subject to the problems in their respective disciplines. The ICAR have undertaken to meet the expenses for organising these Summer Instts./Short Courses. It would be possible to accommodate one or two from the sponsored list of teachers, researchers and extension specialists from the University/College/Institute/Deptt. who are actively engaged in teaching research or extension in the respective subjects.

Further details with regard to eligibility requirements, duration of the course, date of commencement, registration fee, etc. may be obtained from the college/university concerned or the Assistant Director General (ASE), Indian Council of Agricultural Research, Krishi Anusandhan Bhavan, Pusa, New Delhi-110012.

Sophisticated Instruments for HAU Scientists

Dr. C. Niemoller, Cultural Counsellor, West German Embassy, gifted on behalf of the Alexander

von Humboldt Foundation of West Germany some sophisticated instruments to Dr. Gopal Krishna, Animal Nutritionist of the Department of Animal Breeding, HAU, Hisar. The equipment comprising RUSITIC (artificial rumen), Buchi Nitrogen Analyser and fine auto pipettes have been gifted in recognition of the meritorious work carried out by Dr. Gopal Krishna. The equipment will be used for studying the quality of feeds and fodder fed to dairy animals viz. cows, buffaloes and goats. Thus it would be possible to carry out advanced research in this area.

Dr. Niemoller also gifted a Beta counter to Dr. M.M. Galhotra, Department of Animal Production Physiology & Dr. A.S. Virk, Department of Animal Nutrition. This will be helpful to estimate the hormonal levels in animals.

Dr. R.S. Malik of the department of Soils, was presented a sensor recorder for studying soil physical properties while Dr. I.S. Dahiya was offered a computer for soil investigation purposes.

This equipment, amounting approximately Rs. 23 lacs have been gifted to these scientists for their outstanding research work in the respective areas.

Speaking on this occasion, the Director of Research, Dr. Mahendra Singh congratulated the scientists and assured Dr. Niemoller that these instruments will be used for doing investigational work in the respective fields.

Earlier, Dr. C. Niemoller visited the H.A.U. campus and saw the

research work being done at the laboratories of the department of Animal Breeding and the department of Soils. In a meeting, held with the senior scientists of the university, Dr. Niemoller explored the possibilities of initiating an

Indo-German partnership project on the topic "Developing technology for minimising the cost of milk production in the dairy animals raised under tropical/sub-tropical conditions".

AIU News

Bahrain Secondary Certificate Recognised

The Association of Indian Universities (AIU) have formally recognised the General Secondary Certificate of Bahrain for purposes of admission to higher studies.

The Ministry of Education of Bahrain had invited Shri K. C. Kalra, Deputy Secretary (Evaluation), AIU to acquaint him with the secondary stage pattern of education in Bahrain and to recommend the parity of its General Secondary Certificate. The Certificate had earlier been equated with the old pattern of 11 years secondary education in India. Almost all the countries in the Arab Gulf, including Bahrain, have switched over to 12 years secondary education during the last few years.

Bahrain spends about 13% of its budget on education as it is thought to be the best investment for an assured future of the country. It claims to have reached an 'Adult' stage in education with the commissioning of Gulf University in Bahrain. The country has now 2 universities, an engineering and medical college each and about 139 Primary/Secondary Schools for a population of about 5 lakhs. It raised necessary infrastructure facilities to enrol every child in the school and to see him through the university level. Bahrain is the only country in the Gulf which has the facility for teaching of English

as a second obligatory language in secondary schools. Although standardisation of education is regulated through the Education Ministers Conference of the region. Bahrain is treated as one of the advanced countries in the field of education. The country has achieved the target of obligatory and free education upto primary stage.

Shri Kalra had associated in his Team a Member of the Indian Faculty now in Bahrain University and Principals of Indian Secondary Schools in Bahrain and Dubai for the study, as these Members were found to be acquainted with the pattern of education in both the countries. The Committee had visited a number of Secondary Schools, met the Minister and other senior officials and discussed with them various issues involving comparability of the two systems.

The Team's report was placed before the appropriate authorities of the AIU which have approved the recognition.

SPORTS NEWS

Campus Fitness Programme

The Department of Physical Education and Sports Sciences of the Annamalai University runs a Campus Fitness Programme for the

benefit of its staff and students. Students, teachers and other members of the staff test their own Physical Fitness through a medium of simple battery of tests conducted by the Department with the help of prospective teachers in physical education. Simple tests have been selected mainly to test strength, endurance and cardio vascular efficiency. These tests include : For men : Floor Push ups—straight back, 12 min. Jog/run/walk. Sit ups—bend knee for 1 min. continuous. For women : Flexed arm hang (in seconds), Sit ups (band knee) and 8 min. Jog/run/walk.

For each participant, a fitness card is maintained which shows the periodical improvement he or she has made in terms of frequent testing. The programme is being organised at the SNIPES Field Station and UGC physical conditioning centres.

We Congratulate . . .

1. Prof. K.V. Ramana who has been appointed as Vice-Chancellor of the Andhra University, Waltair.
2. Prof. S.V.J. Lakshman on his appointment as Vice-Chancellor, Sri Vankateswara University, Tirupati.
3. Shri G.S. Randhawa who has been appointed as Vice-Chancellor of the Guru Nanak Dev University, Amritsar.
4. Dr. Madhukar Govindrao Bokare who has been appointed as Vice-Chancellor of Nagpur University.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles culled from periodicals received in the AIU Library during March, 1988

EDUCATIONAL PHILOSOPHY

Klafki, Wolfgang. The significance of the classical theories of education for an up-to-date concept of general education. *Education* (36), 1987, 7-31.

EDUCATIONAL PSYCHOLOGY

Kagan, Dona M. The social implications of higher level thinking skills. *Res Hr Edn* 27 (2), 1987, 176-87.

EDUCATIONAL SOCIOLOGY

Chiplunkar, V.V. Education and development of women : Project Maher. *J Ednl Plg & Admn* 1 (2), 1987, 173-90.

Imtiaz Ahmad. Educational development of minorities in India : Future perspective. *J Ednl Plg & Admn* 1 (2), 1987, 191-209.

Moonis Raza and Premi, Kusum K. Indicators of equity in education : A conceptual framework. *J Ednl Plg & Admn* 1 (2), 1987 1-29.

Safiyid Hamid. Education of minorities : Future perspective. *J Ednl Plg & Admn* 1 (2), 1987, 210-15.

EDUCATIONAL ADMINISTRATION

Gross, Ronald. Leadership for the learning society : Harvard's Institute for the management of lifelong education. *Coll Bd Review* (146), 1987-88, 10-3, 24-5.

Sapra, C.L. and Mathew A. Promoting equity and diversity in education : Challenges for educational administrators. *J Ednl Plg & Admn* 1 (2), 1987, 57-89.

TEACHERS & TEACHING

Aston, Mike. Professional development and teacher education—Have we got it right. *Computers & Edn* 12 (1), 1988, 79-83.

Klemm, W.R. Ten ways to improve graduate teaching. *Coll Bd Review* (146), 1987-88, 16-9, 26-9.

Lewis, Florence C. On self-esteem. *College Bd Review* (146) 1987-88, 2-3, 31-2.

Trainer, Richard H. Implementing computer-based teaching and research : The need for a collaborative approach. *Computers & Edn* 12 (1), 1988, 37-41.

Underwood, Jean. An investigation of teacher intents and classroom outcomes in the use of information-handling packages. *Computers & Edn* 12 (1), 1988, 91-100.

EDUCATIONAL TECHNOLOGY

Adams, Tony. Computers in learning : A coat of many colours. *Computers & Edn* 12 (1), 1988, 1-6.

Beevers, C.E. and others. The CALM before the storm : CAL in university Mathematics. *Computers & Edn* 12 (1), 1988, 43-7.

Bennett, Mike and Smith, David. Evaluating television-linked computer software. *Computers & Edn* 12 (1), 1988, 133-9.

Chatterton, John L. Knowledge control : The effect of CAL in the classroom. *Computers & Edn* 12 (1), 1988, 185-90.

Degli Innocenti, Riccardo and Ferrara, Maria. Database as a tool for promoting research activities in the classroom : An example in teaching Humanities. *Computers & Edn* 12 (1), 1988, 157-62.

Duchastol, Philippe C. Display and interaction features of instructional texts and computers. *British J Ednl Tech* 19 (1), 1988, 58-65.

Gardner, Nigel. Integrating computers into the university curriculum: The experience of the U.K. Computers in teaching initiative. *Computers & Edn* 12 (1), 1988, 23-7.

Hartley, James. Using principles of text design to improve the effectiveness of audiotapes. *British J Ednl Tech* 19 (1), 1988, 4-16.

Mason, Robin. Computer conferencing: A contribution to self-directed learning. *British J Ednl Tech* 19 (1), 1988, 28-41.

McCormick, Sophie and Bratt, Peter. Some issues related to the design and development of an interactive video disc. *Computers & Edn* 12 (1), 1988, 257-60.

Thornburg, David D. From metaphors to microworlds: The challenge of creating educational software. *Computers & Edn* 12 (1), 1988 11-5.

EDUCATIONAL EVALUATION

Joshi, Pradecp. Question Banking as a tool of examination reform. *Prog of Edn* 62 (8), 1988, 186-88, 185

Kealy, Mary Jo. Student perceptions of college quality. *J Hr Edn* 58 (6), 1987, 683-703.

Lane, David S, Jr and others. The effects of knowledge of item arrangement, gender and statistical and cognitive item difficulty on test performance. *Ednl Psy Measurement* 47 (4), 1987, 865-79.

Muffo, John A and others. Using faculty publication rates for comparing 'PFER' institutions. *Res Hr Edn* 27 (2), 1987, 163-75.

Stodt, Martha McGinty. Educational excellence as a prescription for retention. *New Directions Hr Edn* (60), 1987, 5-13.

Stodt, Martha McGinty. Intentional student development and retention. *New Directions Hr Edn* (60), 1987, 15-26.

ECONOMICS OF EDUCATION

Mohammad Abul Basher Mian. Demand for higher education: A comparative study of ratio and logit models. *Manpower Journal* 21 (3), 1985, 19-29.

Sharma, G.D. Equity, quality and costs: Some fundamental issues and evidences. *J Ednl Plg & Admn* 1 (2), 1987, 30-7.

VOCATIONAL EDUCATION

Hearn, James C. Impacts of undergraduate experience on aspirations and plans for graduate and professional education. *Res Hr Edn* 27 (2), 1987, 119-411.

ADULT EDUCATION

Cervero, Ronald M. Professionalization as an issue for continuing education. *New Directions Cont Edn* (36), 1987, 67-78.

Eswara Reddy, V. Human rights: The interactive context of development and non-formal education. *Indian J Adult Edn* 48 (4), 1987, 53-61.

Garrison, D. Randy. The role of technology in continuing education. *New Directions Cont Edn* (36), 1987, 41-54.

DISTANCE EDUCATION

Meintjes, Laurie. Program development: Plan for success take time to succeed. *Distance Edn* 8 (2), 1987, 162-75.

Nation, Daryl. Some reflections upon teaching Sociology at a distance. *Distance Edn* 8 (2), 1987, 190-207.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Flather, Paul. Challenge that was not met. *Times Hr Edn Supplement* (795) January 29, 1981, 5.

Shahane, Vasant A. Perspectives on Indian universities and research in Humanities. *New Quest* (66), 1987, 363-74.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

1. Mookerji, Prasun. *Intra and inter-population variations in anthropometric variables and work performance in Lodhas, Mahalis and Mundas of West Bengal.* Delhi.

2. Rai, Shri. *The influence of season of birth on the formation of dermatoglyphic characteristic: A case study among the Kalor of Madhya Pradesh.* HS Gour. Dr. Ramesh Choubhe.

3. Shil, Anu Prabha. *Comparative evaluation of growth patterns in various biological variables among Lepchas, Bhutias, Sherpas and Tamangs of Sikkim Himalayas.* Delhi.

4. Srutikar, Pankaj Kumar. *Finger and palmar dermatoglyphic variations among some Assamese castes.* Gauhati. Dr. Renuka Das.

Marine Biology

1. Chandran, A. *Functional morphology of the digestive system in certain marine lernaeopodids (Copepoda: Siphonostomata) with notes on the nature of infestation of copepod parasit-*

es of fishes of the South-West Coast of India. Kerala. Dr. N. Balakrishnan Nair.

2. Gopinathan, K. *Ecology and fisheries of certain inland water bodies of Kerala.* Kerala. Dr. N. Balakrishnan Nair.

3. Shadananan Nair, K. *Hydrometeorological studies of Kerala in relation to the Western Ghats.* CUST. Dr. H.S. Ram Mohan.

Biochemistry

1. Annapurna, V.V. *Effects of oral contraceptive on non-regenerating and regenerating rat liver.* Osmania.

2. Basu, Jayati. *Effect of fatty acid supplementation on some biochemical properties of Saccharomyces cerevisiae.* Calcutta.

3. Das, Sanjay Kumar. *Mechanism of action of mycobactilin on a molecular level.* Calcutta.

4. Kanthe, Vijaya Vaman. *Studies in alteration in microsomal electron transport reactions.* Marathwada. Dr. S.S. Pawar.

5. Kundu, Manikuntala. *Studies on some exocellular proteins of Neurospora crassa and Saccharomyces cerevisiae*. Calcutta.
6. Nandi, Pranati. *Effect of dietary fibre(s) on the absorption of some nutrients in experimental rats*. Calcutta.
7. Nandi, Ratna. *Fermentative production of glucoamylase*. Calcutta.
8. Padmaja, G. *Biochemical studies on cassava, Manihot esculenta Crantz, toxicity with special reference to linamarin*. Kerala. Dr. K. Ramachandra Panicker.
9. Panth, Meena. *Evaluation of Vitamin A status in pregnancy*. Osmania.
10. Parcharni, Hundal. *A study of the effect of feeding edible oil, cholesterol, onion, garlic and guar gum on the development of regression of atherosclerotic plaques*. Rajasthan. Dr. P.K. Sharma.
11. Usha, V. *Biochemical investigations on dietary fibre*. Kerala. Dr. P.A. Kurup.

Botany

1. Agarwal, Madhu. *Regulation of secondary metabolites in Trigonella species by chemical treatments*. Rajasthan. Dr. S.C. Jain.
2. Anjaiah, N. *Effects of salinity on osmoregulatory solutes in Atriplex griffithii Moq.* Bhavnagar. Dr. A.J. Joshi.
3. Appanna, Nikku. *Studies on airspora and daily pollen release at Vijayawada A.P. India*. Andhra.
4. Arya, Inder Dev. *Studies on cytogenetics and tissue culture of certain legumes*. Rajasthan. Prof. N. Chandra.
5. Awasthy, Rama. *Studies on the cellulose degradation and synthesis by some soil fungi*. Durgawati. Dr. S.K. Hasija.
6. Bhoite, A.S. *Studies on salt tolerance of Aeluropus lagopoides Linn. A halophytic grass*. Bhavnagar. Dr. A.J. Joshi.
7. Chatterjee, Meenakshi. *Aerobiological studies of Bangalore North with particular reference to fungal aeroallergens*. Bangalore. Dr. Shripad M. Agashe.
8. Chauhan, Suchita. *Assimilation of inorganic nitrogen in some tropical forest tree seedlings*. Avadh. Dr. H.S. Srivastav.
9. Datt, Bhaskar. *Flora of Chhatarpur District, Madhya Pradesh*. Kumaun.
10. Ghadge, Dattatraya Nanasaheb. *Studies in discomycetous fungi*. Shivaji. Dr. M.S. Patil.
11. Harsh, Rajni. *Histopathological studies of some insects induced plant galls*. Rajasthan. Dr. Uma Kant.
12. Jain, Shakuntala. *Effect of dust pollution on opium poppy and wheat of Mandasaur District*. Vikram. Dr. R.K. Tugnawat.
13. Johar, Maninder Singh. *Studies in rhizobium ecotypes of Leucaena leucocephala and their nitrogen fixation potential*. Durgawati. Dr. J.N. Dubey.
14. Kamala Devi, T. *Biological studies on the germination of winged bean, Phosphocarpus tetragonolobus (L) (DC) seeds*. Calicut. Dr. K. Sreekumar and Dr. P.S. Krishnan.
15. Kundu, Prasanta Kr. *Studies in damping-off disease of cauliflower by Rhizoctonia solani Kühn and its biological control*. Burdwan. Prof. Balen Nandi.
16. Lazarus, Smita Nilima. *Investigations on the production of antibacterial and antifungal antibiotics by actinomycetes from soils of Jabalpur*. Durgawati. Dr. G.P. Agrawal.
17. Meera Bai, Guddati. *The ecology of butterflies and their role in natural pollination of plants at Visakhapatnam, A.P., India*. Andhra.
18. Mulik, Niranjana Gopalrao. *Studies on some aspects of mangroves*. Shivaji. Dr. (Smt) L.J. Bhoale.
19. Narasimham, Malapaka. *Tissue culture and reproductive physiology of some legumes*. Delhi.
20. Naveen Chandra. *Cytological and mutational studies in Gloriosa superba Linn.* Nagpur. Dr. J.L. Tatar.
21. Pallavi, Ranjana. *Structural and functional relationship of photosystem II components in higher plants*. JNU. Prof. G.S. Singhal.
22. Rama Devi, Kothapalli. *Pollination ecology of Zizyphus mauritiana and Z. oenoplia of Rhamnaceae*. Andhra.
23. Sah, N.C. *Ethnobotany in the mountainous region of Kumaun Himalaya*. Kumaun. Dr. S.K. Jain.
24. Samant, S.S. *Flora of the Central and South Eastern parts of Pithoragarh District*. Kumaun. Dr. Y.P.S. Pangty.
25. Sarma, Donepudi Viswanatha. *Embryological, palynological and foliar dermotype studies in Asteraceae*. Andhra.
26. Satyanarayana, Narra Venkata. *Morphological, physiological and biochemical responses of the seedlings of physoplea, Cajanus cajan (L) Millsp to sulphur dioxide*. Andhra.
27. Satyanarayana Murty, Kambhampati. *An ecological study of Lake Kondakarla*. Andhra.
28. Sharma, Binju. *Studies on pollen morphology of angiospermic flora and in air borne pollen and spores causing allergy to human being of Jaipur region*. Rajasthan. Dr. Nav Jyot Sarma.
29. Sharma, Kiran Kumar. *Control of organ differentiation from somatic tissues, and pollen embryogenesis in anther-cultures of Brassica juncea (L.) Czern. Delhi*.
30. Shrivastava, G.K. *Effect of sewage sludge applications and sewage enriched cadmium and zinc on three varieties of Abelmoschus esculentus (L.)*. Vikram. Dr. V.P. Singh.
31. Singh, Atul. *Studies on false smut, Claviceps oryzae sativae Hashikoa of rice in eastern Uttar Pradesh*. Avadh. Dr. H.B. Singh.
32. Singh, Devendra Pratap. *Physiological aspects of Azolla-Anabaena symbiosis, its contribution to nitrogen nutrition and yield of rice*. Utkal.
33. Venkanna, Pamarti. *Flora of Krishna District, Andhra Pradesh*. Andhra.
34. Zileed Singh. *Studies on seed mycoflora of important oil and seed crops*. Avadh. Dr. H.B. Singh.

Agriculture

1. Arora, Indu. *Genetic analysis of certain developmental traits in relation to grain quality in Indian mustard*. PAU.
2. Behera, Bananajay. *Studies on some seed borne diseases on groundnut*. Orissa Agri. Dr. A. Narain.
3. Chakrabarti, Syamali. *Studies on some aspects of the problem of breeding low temperature tolerant Boro Paddy*. Calcutta.
4. Chanda, S.V. *Physiological and biochemical studies in relation to productivity parameters and cell elongation in pearl millet*. Saurashtra. Dr. Y.D. Singh.
5. Chaubey, Ashok Kumar. *A study on the impact of integrated rural development programme on socio-economic life of farmers in Varanasi District of U.P.* BHU. Dr. B.D. Pandey.
6. Chauhan, Youshbir Singh. *Investigations on the morphological, biochemical and genetical basis to fruit rot resistance, phytophthora nicotianae var. parasitica in tomato*. YS Parmar. Dr. M.R. Thakur.

- 7 Deka, Arun Kumar. *Exchange/adsorption studies on Zn, Cu, and Co in soils of semiarid and humid regions* HAU
- 8 Dwivedi, Naren Behari. *Studies on sugarcane culmicolous smut caused by Ustilago scitaminea (Sydew) RAU.*
- 9 Jagan Nath. *Structural and biochemical nature of resistance in apple to Venturia inaequalis (Cke) Wint causing scab* YS Parmar, Dr J.L. Kaul
- 10 Kapoor, Onkar Chand. *Effect of mulching, methods of planting and irrigation management on percolation losses, water use efficiency and soil thermal regimes in potato* HP Krishna, Dr B.S. Kanwar
- 11 Kishori Lal. *Studies on the effect of different sources of nitrogenous fertilizers on the yield and quality of chinery hybrid types of tea, Camellia sinensis L* YS Parmar, Dr T.R. Chadha
- 12 Rajan Kumar. *Cyrogenetic investigations in male sterile mutants of rice* PAU
- 13 Rattan Chand. *Variability and biocontrol of Phytophthora cactorum on apple* YS Parmar, Dr V.K. Gupta
- 14 Sharma, Jatinder Kumar. *Study of genetics of some morphological, biochemical and physiological characters associated with drought resistance in maize Zea mays L* HP Krishna, Dr S.K. Bhalla
- 15 Subhash Chander. *Studies on resistance to Erysiphe graminis f.sp. tritici causing powdery mildew in wheat* PAU
- 16 Tripathi Radhey Krishna. *Bionomics of red cotton bug Dysdercus Koenigii F and its insect enemies and their comparative susceptibility to certain anticholinesterases* BHU, Dr H.N. Singh
- 17 Vidya Dina Nath. *Influence of environmental factors on foraging activity of honeybees and their role in berseem Trifolium alexandrinum L seed production* YS Parmar, Dr O.P. Bhalla

Zoology

- 1 Balamani B. *Studies on population dynamics of helminth and acanthocephalan parasites of certain avian hosts* Osmania.
- 2 Bandyopadhyay Tarit Kumar. *Studies on the ecology of the pest complex of brinjal in West Bengal* Calcutta
- 3 Chatterjee, Anupam. *Chemical protection against ionizing radiation and radiomimetic chemical induced chromosomal aberrations in mammalian lymphocyte culture* BIHU, Dr (Mrs) M.J. Raman
- 4 De, Kalyan. *Studies on the morphology ecology and control of mango nut weevil Sternonchus gravis Fabricius (Coleoptera Curculionidae) in Tripura* Calcutta
- 5 Joshi, Rachana. *Studies on the biology and control of grape vine beetle, Aides scutellata Hope (Chrysomelidae: Coleoptera)*, Kumaun
- 6 Nayak, Manorama. *Limnology of the marginal waters of the Hirakud Reservoir Sambalpur* Dr Ajoy Kumar Patra
- 7 Parameswara Kurup, K.N. *Some aspects of limb regeneration in the fresh water crab, Parataphus hydrodromus Herbst* Calicut, Dr Rita G. Aiyodi
- 8 Patil, Mohan Ganpati. *Comparative studies on lipids in adipose tissue of Indian bats* Shivaji, Dr V.A. Sawant.
- 9 Remadevi, O.K. *Biology, morphology and host parasite relationships of Gonolus nephantidis, the bethylid parasite of the black-headed caterpillar pest of coconut, Opisthina arenosella Walker, Calicut, Dr. U.C. Abdurahiman*

- 10 Selvan, M. Senthamizh. *Physiological studies on chosen insect pests, predators and parasites*, Madurai
- 11 Shanavas, K.R. *Studies on haemoprotozoans from the lower vertebrates of Kerala, India* Calicut, Dr P. Ramachandran.
- 12 Sharif Uddin Ahmed. *An electrophoretic approach to biochemical systematics of animals with special reference to fish*, Manipur, Prof H. Tombi Singh
- 13 Singh, Onam Lukhoo. *Comparative histomorphology and certain aspects of physiology of the digestive tract of Odoiporus longicollis (Oliv) (Coleoptera Curculionidae)* Manipur, Dr B. Prasad
- 14 Syed Akhtar Hussain. *Abnormal sexual development and infertility in humans: A cytogenetic, hormonal and cell cycle kinetic study* BHU, Dr R. Bamezai
- 15 Tripathi Arun Kumar. *Studies on insect feeding deterrents in plants* Avadh, Dr Harihar Jha
- 16 Viswanathan, N. *Maternal entrainment of the circadian activity rhythm of the pups in the field mouse, Mus booduga* Madurai

Medical Sciences

- 1 Bhattacharyya Ratna. *Studies on the adsorption of cholerae to Vibrio Cholerae* Calcutta
- 2 Chandra Kant. *Neurochemical and neuro pharmacological studies on Shuddha Kupila (S. Yu Vomica)* BHU, Dr S.K. Bhattacharya
- 3 Chowdhury Mridul Kanti. *Multivariate analysis of infant and childhood diarrhoeal morbidity and mortality: A longitudinal study in rural Bangladesh* BHU, Dr V.M. Gupta
- 4 De Swapankumar. *Studies on gastric peroxidase* Calcutta.
- 5 Dwivedi Shridhar. *Prostaglandins and related neuro-humors in ischaemic heart disease* BHU, Prof K.N. Udapa.
- 6 Mishra, Ashok Kumar. *Concept of embryology as described in ancient and modern literature* BHU, Dr L.P. Gupta
- 7 Momin Ali, Kazim Ali. *A study on standardisation aspects of ayurvedic drugs commonly used in primary health care* Gujarat Ayurved, Prof Gurudeep Singh.
- 8 Ratnam Garigapati Venkata. *Chemical and biological studies on the flavonoids of Tephrosia fulviginervis and T. procumbens* Andhra.
- 9 Tripathi, Ajay Kumar. *Gramin swasthya sanrakshan Prashasan: Prathamik swasthya kendra Charai Gaon prakhand Varanasi kee prashasanik sanrachana evam bhumi per adharit ek samaj vaigyanik adhyayan.* BHU, Dr. K.P. Shukla
- 10 Tripathi, Krishna Murari. *A study of personality and behaviour pattern profile in psychosomatic disorders and the role of certain therapeutic interventions* BHU, Prof R.H. Singh
- 11 Vajayan, P. *Virological and epidemiological studies of poliomyelitis at Calicut* Calicut, Dr C.K. Jayaram Panicker

Animal Husbandry

- 1 Bhatt, Vinod Kumar. *Disposition of gentamycin and ampicillin in buffaloes following intra muscular and intrauterine administration in luteal phase of normal oestrus cycle and metritis* HAU.

INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited upto **25th May, 1988** for the following posts at the Council's Institutes/Centres :

- (1) At the National Institute of Occupational Health, Ahmedabad.
(*) Senior Research Officer (Pesticide Residue)-One Post
(Scale of Pay : 3000-100-3500-125-4500)

Qualifications & Experience: Essential

1st Class M.Sc./Master's degree in Analytical Chemistry of Agriculture Chemistry with 6 years research/teaching experience in pesticide residue analysis work in human tissues, blood, milk, etc. or Ph.D. with 2 years experience in research/teaching.

Job Requirements

To plan and carry out biological monitoring of pesticides in workers exposed to pesticides and evaluation of pesticidal pollution.

- (b) Deputy Director (Two Posts-one each at Regional Occupational Health Centre, Bangalore and Calcutta) (Scale of Pay : Rs. 4500-150-5700)

Qualifications & Experience : Essential

(i) M.D. in Medicine or PSM or Community Medicine or Ph.D. in Environmental Sciences with 10 years research/teaching experience in the discipline of Occupational Health & Hygiene (12 years experience in case of M.B.B.S./1st class M.Sc./Master's degree).

(ii) Original work as evidenced by publications.

Job Requirements

To provide high level leadership in formulation and implementation of research programmes & developments & activities related to occupational Health problem of the region.

- (2) At the Cytology Research Centre, New Delhi
(a) Assistant Director (Cytopathology) One Post.
(Scale of Pay : Rs. 3700-125-4700-150-5000)

Qualifications & Experience : Essential

(i) M.B.B.S./1st Class M.Sc. in Pathology/Cytopathology from a recognised University. Evidence of leadership with 12 years or M.D./Ph.D. with 10 years

research/teaching experience in cytopathology.

- (ii) Original work as evidenced by published papers

Desirable

M.D./Ph.D. in Pathology with 10 years experience. Out of which 5 years experience in the field of Cytopathology.

Job Requirements

(i) Planning & implementation of research programme in the field of Cytopathology and related Subject.

- (ii) Diagnostic cytopathology in referral cases.

- (b) Assistant Director (Clinic)-One Post
(Scale of Pay : Rs. 3700-125-4700-150-5000)

Qualifications & Experience : Essential

(i) M.B.B.S. from a recognised University. Evidence of leadership with 12 years of M.D. with 10 years research/teaching experience in the field of gynaecology.

- (ii) Original work as evidenced by published papers.

Job Requirements

(i) To co-ordinate the clinical aspects of major multicentric studies such as cervical precancer & cancer, and breast cancer undertaken by the Centre in collaboration with other institutes & hospitals.

(ii) To offer appropriate management to cervical precancer and cancer cases.

(iii) Participation in planning & administration and other research programmes.

(iv) To look after the Administrative work of the division of Clinical research.

- (c) Senior Research Officer (Cytopathology)
—One Post
Scale of Pay : Rs. 3000-100-3500-125-4500)

Qualifications & Experience : Essential

M.B.B.S. with 6 years research/teaching experience in Pathology or M.D. with 2 years research/teaching experience in Pathology.

Job Requirements

- (i) To assist and organise various research programmes in Cytopathology.
- (ii) To assist in Conducting training programme and preparation of teaching material in cytopathology.
- (3) At the Enterovirus Research Centre, Bombay
Deputy Director One Post.
(Scale of Pay : Rs. 4500-150-5700)

Qualifications & Experience : Essential

M.B.B.S. with 12 years research experience in Virology (10 years for those with M.D. in Microbiology or Pathology)

Desirable

- (i) Ability to guide postgraduate students.
- (ii) Administrative ability.
- (4) At the Malaria Research Centre, Delhi
Senior Research Officer (Malaria Control) - One Post.
Scale of Pay : Rs. 3000-100-3500-125-4500)

Qualifications & Experience : Essential

1st class Master of Science degree in Organic Chemistry with 6 years research teaching experience or Ph.D. (Organic Chemistry) with 2 years research teaching experience, preferably in protein chemistry and gene-cloning as evidenced by research publications.

Job Requirements: Selected candidate would be required to set up a laboratory of molecular cloning of genes for antigens from Indian isolates of human malarial parasites development of non-radioactive, NDA probes for parasite detection, participate in collaborative research activities, both national and international in various aspects of immunology and immunoprophylaxis against malaria, teaching and other duties assigned by the Director.

- (5) At the Tuberculosis Research Centre, Madras.
Deputy Director (Clinic)—One Post
Scale of Pay : 4500-150-5700)

Qualifications & Experience : Essential

- (i) M.B.B.S. with research experience in tuberculosis for 12 years (10 years for those with M.D. (Tuberculosis) or M.D. (Medicine)).
- (ii) Original work as evidenced by published papers.

Desirable

Experience in Conducting controlled Clinical trials in the treatment of communicable diseases.

Job Requirements

Controlled Clinical investigations in the treatment of Pulmonary Tuberculosis, Tuberculosis of Lymphadenitis, tuberculous meningitis, tuberculosis of the spine and leprosy. The incumbent will have to supervise the work in the clinic which undertakes the Clinical Studies in patients. He will also have to tour the districts in various States where 'Short Course Chemotherapy under District Tuberculosis Programme' is undertaken. He will be required, to plan guide and supervise the conduct of the clinical investigations and will have certain administrative responsibilities in the Clinic.

- (6) At the Rajendra Memorial Research Institute of Medical Science, Patna.
Asstt. Director (Epidemiology)—One Post
Scale of Pay : Rs. 3700-125-4700-150-5000)

Qualifications & Experience : Essential

- (i) M.B.B.S./1st class M.Sc. in Entomology/Medical Entomology with 12 years research/teaching experience in the field of parasitic disease of public importance ; or
- (a) M.D. in PSM Medicine, or
- (b) Ph.D. in Entomology Medical Entomology with 10 years research or teaching experience in the above field.
- (ii) Original work as evidenced by Publications.

Desirable

Experience in Epidemiological Research in Parasitic disease especially leishmaniasis.

- (7) At the Regional Medical Research Centre, Dibrugarh.
Senior Research Officer Each in Pathology Microbiology, Epidemiology and Medicine.
Four Posts
(Scale of Pay : Rs. 3000-100-3500-125-4500)

Qualifications Experience : Essential

M.B.B.S./1st class M.Sc./Master's degree in related subject with 6 years research teaching experience in the related field or M.D./Ph.D. in Pathology/Microbiology/Social & Preventive Medicine or Medicine with 2 years research/teaching experience.

Job Requirements

S.R.O. (Pathology): To plan and co-ordinate research projects on various problems involving Histopathology, Cytology and Haematology.

S.R.O. (Microbiology): To Plan, organise carry out research work on problems involving microbiology, Virology, Parasitology and Mycology.

S.R.O. (Epidemiology): To carry Epidemiological

Age : Below 50 years for the posts of Deputy Director and below 45 years for the posts of Assistant Director, and Senior Research Officer. SC/ST candidates allowed relaxation in accordance with Govt. of India rules.

Allowances as per Central Govt. rules are admissible on the above pay scales.

Benefits of pension admissible. Private practice is not allowed. However, NPA as per rules of the Council is admissible to medical graduates only. Candidates called for interview for the posts of Deputy Director and Assistant Director will be paid first class rail fare and for the posts of Senior Research Officer will be paid Second class rail fare by shortest route, on production of documents.

Applications from employees working in Central State Govt. Depts./Public Sector Undertakings and Govt. funded research agencies must be forwarded through proper channel.

Application forms can be obtained from the office of the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No. 4508, New Delhi-110 029. Forms duly completed should be sent to the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No. 4508, New Delhi-110 029 with a crossed IPO for Rs. 8/- payable to the DG, ICMR, New Delhi. SC/ST candidates are exempted from this payment.

Incomplete and late application or without postal order will not be entertained. The name of the post and of the Institute/Centre must be indicated in the application form.

Separate application form should be submitted for each post with crossed I.P.O. for Rs. 8/- and for each Institute.

survey of Various diseases of the North Eastern Region as and when necessary. To participate in planning, projecting and monitoring of all research projects taken up by the Centre.

S.R.O. (Medicine): To work as the Medical Officer of the Malaria Clinic of the Centre. To accompany as physician member of field team of Malaria Research. To participate in planning multi-disciplinary research project in the Centre.

Cable : USOFORUM

Phones : 661103, 663998

United Schools Organisation of India (Estd. 1951)

USO House, 6, Special Institutional Area,
Qutab Hotel Road, New Delhi-110067

President : Ram Niwas Mirdha

Secretary-General : Jiya Lal Jain

USO Trust, New Delhi, is looking for a capable person to organise and run short-term diploma courses in Pharmacy, Pharmacology, Laboratory Technician, X-ray Technician, and English language courses from the forthcoming academic year. He/She will be responsible for organising and running the courses, select staff and look after daily administration.

Teaching and administrative experience of at least 5 years is essential. Salary and perks according to university scales. Applications containing detailed biodata should be addressed to the Chairman, USO Trust, USO House, New Delhi-110067.

Ram Nath Tandon

ASSISTANT SECRETARY GENERAL

CLASSIFIED ADVERTISEMENTS

S N D T. WOMEN'S UNIVERSITY

1, NATHIBAI THACKERSEY ROAD
BOMBAY-400 020

Advertisement No. 9
Dated : March 19, 1988

Applications are invited in the prescribed forms available at the University Office between 10-30 a.m. to 2-30 p.m. from Monday to Friday and 10-30 a.m. to 12-00 Noon on Saturday, on payment of Rs. 5/- (M.O. Indian Postal Order in Cash) for S.V.T. College of Home Science, Bombay-49. 2 (Two) Research Assistants for P.G. Dept. of Family Resource Management and 4 (four) Research Assistant for P.G. Dept. of Foods & Nutrition (under DRS Programme), on a temporary tenure basis.

Required Qualifications—Research workers and teachers having at least a second class Bachelor's and Master's degree in the above relevant subjects.

Preference would be given to those who have had teaching research experience. Fixed Salary Rs 1200 - p.m. Rs 1400/- p.m. depending upon experience and qualifications.

Apply on or before 15 days from the date of this advertisement.

REGISTRAR

VIKRAM UNIVERSITY UJJAIN

No Dev/Estt/SS 88 29 Dated 5 4 88

Applications, in prescribed forms, are invited for THREE READERS POSTS IN POLITICAL SCIENCE so as to reach the undersigned on or before 23rd May, 1988.

Out of three posts one for production of teaching material-cum-translation and another in Political Theory & Analysis under the University Leadership programme of U.G.C. and the third post is a leave vacancy upto 30th July, 1988. In the U.G.C. pay scale of Rs. 1200-50-1300-60-1900.

The minimum essential qualifications for these posts are the same as prescribed by the University Grants Commission. The prescribed application form along with the details of qualifications etc., can be obtained from the undersigned on payment of Rs. 10.00 in person or by sending a Crossed Indian Postal Order payable to the Registrar, Vikram University, Ujjain (M.P.).

The candidates in employment should send their applications through proper channel. The candidates who desire the application form by Registered Post should send an additional amount of Rs. 7.00 for Registration Charges. All appointments will be on Two years probation in the first instance except on the leave vacancy. The Superannuation age is 60 years.

The University reserves the right to fill up or not to fill up any post and also call any candidate for interview. No T.A. D.A. will be paid for attending the interview, if called for.

G S Gautam
REGISTRAR

BHARATHIDASAN UNIVERSITY

TIRUCHIRAPALLI 620 024

Notification

Applications are invited for the following faculty positions

Professors - in the scale of pay of Rs 1500-60 1800-100-2000-125 2-2500 - Life Sciences (1), Social Sciences (1), Earth Sciences (1), Bio-Technology (1) and Educational Technology (1)

Readers - in the scale of pay of Rs 1200-50-1300-60 1900 : Life Sciences (1), Earth Sciences (1), Bio-Technology (2) Educational Technology (2) and Academic Staff College (1)

Lecturers - in the scale of pay of Rs 700-40-1100-50-1600 : Mathematics (1), Physics (1), Life Sciences (1), Social Sciences (1), Earth Sciences (3), Bio-

Technology (4), Educational Technology (4) and Academic Staff College (1). Director of Physical Education (1)—in the scale of pay of Rs 1200-50-1300-60-1900

Computer Centre . Head of Computer Centre (1) and Systems Engineer (1) in the scale of pay of Rs 1100-50-1600.

Adult Education, Continuing Education and Extension .

Assistant Director (1) in the scale of pay of Rs 1200-50-1300-60-1900

** All scales of pay carry the usual allowances admissible as per rules and are likely to be revised as per the new U.G.C. scales of pay

How to Apply - Application forms alongwith details of prescribed qualifications and instructions can be had from the Registrar, Bharathidasan University, Tiruchirapalli-620 024 by sending a written requisition with a self addressed oblong envelope (10" x 4") stamped to the value of Rs. 2.50 (Rupees two and paise fifty only), within 10 days from the date of this notification. The envelope requisitioning application forms should be superscribed as 'Faculty Positions'.

The University reserves the right to short-list the applications and also the right to fill or not to fill any or all of the above posts.

Prof. T. S. Shanmuga Sundaram
REGISTRAR

TECHNICAL TEACHERS' TRAINING INSTITUTE

SECTOR 26, CHANDIGARH

Advertisement No. 5 88

1. Applications are invited by the Principal in the prescribed form for the undermentioned posts .

1. Professors (Rs 1500-2500 un-revised)

(i) Rural Development—(One)

(ii) Entrepreneurship Development—
(One)

2 Assistant Professors (Rs. 1200-1900—Unrevised)

- (i) Electrical Engineering —(One)
(ii) Computer Science —(One)
(iii) Electronics & Communication—
Engineering —(One)
(iv) Curriculum Development Centre
—(One)

3 Lecturers (Rs 700 1600 unrevised)

- (i) Electrical Engineering —(One)
(ii) Entrepreneurship Development
—(One)
(iii) Lecturer in Engineering in Co-
ordination Cell —(One)

4 Senior Producer (FTV) (Rs 3000-4500—Revised) —(One)

The positions are temporary in the first instance but are likely to continue

II Qualifications & Experience (In Brief)

1 Professors Doctorate degree 1st Class Master degree in the relevant field with 8 to 15 years experience

2 Assistant Professors Doctorate degree/1st Class Master degree in the relevant field with 5 to 10 years experience

3 Lecturers 1st Class Master degree in the relevant field Qualifications are relaxable to 1st Class Bachelor degree in Engineering

4 Senior Producer . A degree in Science Arts Engineering or Diploma in Direction or Production of Film/TV with 7 years experience in Film TV Production Script Writing or a Diploma in Engineering with 10 years experience in the line

III. General Note for all Posts Regarding Relaxation of Qualifications/Experience etc

- 1 Qualifications in lieu of longer experience and experience in lieu of higher qualifications may be relaxed by the competent authority in case suitable candidates with prescribed qualifications and experience are not available.
2. At present the pay scales of faculty (Posts at Sr Nos 1-3) are

unrevised UGC scales. These are likely to be revised in near future.

3. The total emoluments at the minimum of the scales including HRA are approximately Rs 3610, 3197-, 2139/- & 3710/- respectively
4 All posts carry allowances as applicable to Central Govt employees stationed at Chandigarh In addition LTC, GPF-cum-Pension-cum-Gratuity CPF-cum-Gratuity, Medical reimbursement and leave are admissible as per rules. Higher start of pay is admissible for deserving candidates In case candidates are not found suitable for these posts, they can be offered lower posts if willing to accept Second Class to and fro railway fare is admissible for attending the interview
5 The upper age limit is 48 years for posts at Sr Nos 1, 2 & 4 and 35 years for post at Sr. No 3
6 Application forms and detailed information regarding qualifications, experience and job description etc can be obtained from the Senior Administrative Officer of the Institute on requisition by sending a self-addressed unstamped envelope (28 cm x 12 cm) indicating the name of post at the top Applications complete in all respect should reach the Institute on or before 17th May 1988

C. L. Chaudhary
SENIOR ADMIN OFFICER

SAURASHTRA UNIVERSITY

Applications in the prescribed forms are invited for the Post of Professor of Economics. Application forms along with detailed requirements of qualifications, experience and other necessary details regarding this post will be available from the Registrar, Saurashtra University, University Campus Kalawad Road, Rajkot-360005 on sending a self-addressed envelope of the size 23 x 11 cms with postage stamps worth Rs 4 20 Applications in seven copies should reach this office on or before 5-5-1988 alongwith crossed Indian Postal Order worth Rs 10 00. Qualifications, experience as mentioned in the details to be supplied with application form will be

considered final The post is permanent. Age ordinarily not exceeding 55 years. The age, educational qualifications and experience may be relaxed in suitable case

Pay Scale Rs 1500-60-1800-100-2000-125/2-2500

REGISTRAR

INDIAN INSTITUTE OF
TECHNOLOGY BOMBAY-76

P O IIT, POWAI, BOMBAY-400 076
Advertisement No C-203 87 88

Applications on plain paper are invited from the citizens of India for the following post in the Institute Persons employed in the Government Semi-Government Organisation or Educational Institution should apply through their employer Preference will be given to candidates belonging to Scheduled Caste Scheduled Tribe Community and Ex-serviceman Age below 35 years (Relaxable upto 5 years for Govt servants and SC ST candidates) The post carries allowances such as DA CCA etc as per the rules of the Institute (as admissible to Central Govt employees stationed at Bombay)

Post HINDI OFFICER —1 Post

Scale of Pay Rs 2000-60-2300-EB
75-3200-100-3500 (Total emoluments on the minimum of the pay scale Rs 2810)

Qualifications

(I) Essential

Recognised Master's degree or equivalent in Hindi with English as a subject at degree level OR Master's degree or equivalent in English with Hindi as a subject at the degree level OR Master's degree or equivalent in any subject with Hindi and English as subjects at the degree level OR Master's degree or equivalent in any subject with Hindi Medium and English as a subject at the degree level OR Master's degree or equivalent in any subject with English Medium and Hindi as a subject at the degree level.

(II) Five years' experience of terminological work in Hindi and/or translation work from English to Hindi or vice-versa preferably of technical or scientific liter-

ature OR Five years' experience of teaching, research, writing or journalism in Hindi.

Note : 1 Qualifications are relaxable at the discretion of the Institute in case of candidates otherwise well qualified

2. The qualifications regarding experience is/are relaxable at the discretion of the Institute in the case of candidates belonging to the Scheduled Caste and Scheduled Tribes

Desirable

Knowledge of Sanskrit/or a Modern Indian Language. Administrative experience

Experience of organising Hindi Classes or Workshops for noting and drafting

Applications neatly typed on plain paper along with a crossed Indian Postal Order for Rs 3 - (No application fee for SC ST candidates) payable to the Registrar, IIT Bombay and attested copies of all certificates testimonials, strictly as per the format given hereunder should reach the Registrar, Indian Institute of Technology P O IIT, Powai, Bombay-400 076 on or before **2nd May 1988**

Application Format

(1) Name (2) Father's Husband's name (3) Date of Birth (4) Complete address (5) Whether SC ST (6) Academic & Professional qualifications Exams passed name of the University Institution year, medium of instructions, subjects taken and marks obtained (7) Experience (8) Extra curricular activities (9) Signature of the applicant

REGISTRAR

BHOPAL UNIVERSITY, BHOPAL

Advertisement No 1 88

Dated the 25.3.1988

Applications on plain paper (8 copies) are invited for the following posts in the University Teaching Departments so as to reach the Registrar, Bhopal University Bhopal on or before **02.5.1988** Application should be accompanied with the crossed IPO for Rs. 10 - in favour of Registrar, Bhopal University, Bhopal

Professor—1500-2500—One each in (1) Commerce, (2) Law, and (3) Mathematics and Computer Science

Reader—1200-1900—One each in (1) Sociology (2) Geology (3) Microbiology (4) Pol Sc. (Correspondence Course)

Lecturer—700-1600—One each (i) Law

(2) Commerce (3) Comparative Language and Culture (4) Regional Planning and Economic Growth (5) Sociology (6) Microbiology (7) Bio-Science (8) Genetics (9) Economics (Correspondence Course) and two each in (1) Psychology (2) Limnology (3) Mathematics and Computer Science

Qualification and Experience. As prescribed by the University Grants Commission, New Delhi for Professor, Reader and Lecturer

Specialization—(1) Professor of Commerce—Banking (2) Professor and Lecturer of Law—Constitutional Law and Administrative Law with teaching experience Labour Law (3) Professor of Mathematics and Computer Science—Strong background of both Computer Science and Mathematics Software development will be preferred (4) Reader and Lecturer in Sociology—Specialization in any one of the following areas Modernization Studies in Women Sociology of Environment, Rural Development (5) Reader in Geology—Remote sensing, Geomorphology (6) Reader in Microbiology—Fermentation Technology Geotechnology Microbial Genetics Microbial Physiology and Bio-Chemistry (7) Lecturer in Commerce—Applied Economics and Management (8) Lecturer in Mathematics and Computer Science—M Tech (Computer Science) M C A M Sc (Computer Science) with Higher level language systems programming Candidates with strong background of Mathematics will be preferred (9) Lecturer in Comparative Language and Culture—Master's Degree in Sanskrit Pali Prakrit Linguistic with specialization in Linguistic (10) Lecturer in R P E G—Master's Degree in Economics with specialization in quantitative economics (11) Lecturer in Bio Science—M.Sc. in any branch of Life Science Preference will be given to those who have Master's Degree in Plant Science or Animal Science, (12) Lecturer in Genetics—Population Cytogenetics Bio Statistics Molecular Genetics

Note (1) The post of Reader in Pol Sc (Correspondence Course) is upto 05.09.89 and likely to be continued

(2) For the posts of Reader in Sociology and Reader in Microbiology, those who have applied in response to advertisement No 4 86 dt 8.1.87 need not apply

(3) No TA DA will be admissible to the candidate if called for interview The

Selection Committee may consider the candidature of any eminent/suitable person in absentia.

**H K Bagga
REGISTRAR**

DAYALBAGH EDUCATIONAL INSTITUTE

(Deemed University)

DAYALBAGH, AGRA 282005

Applications are invited in the prescribed form for the following posts :

Teaching Posts

I Readers One each in—

1 Computer Science & Applications
2 Botany (Plant Physiology/Bio-Chemistry/Eco-Physiology)
3 Zoology (Cytogenetics/Cell Biology/Entomology)

II Lecturers in—

1 Accountancy & Law (Commerce)—1
2 Applied Business Economics (Commerce)—1
3 Business Administration (Commerce)—1
4 Home Science (Textile & Clothing Construction)—1
5 English—1

6 Mathematics (Faculty of Science) (Pure Mathematics/Computer Science & Applications)—3

7 Engineering Mathematics (Advanced Statistics, calculus of variation, Finite Element Method)—1

8 Rural Development (Home Science with specialization in Extension/Nutrition/Child Development/Textile & Clothing)—1

9 Computer Science & Applications—2

10 Education (English/Home Science/Commerce Hindi Library Science/Economics)—6

11 Mechanical Engineering—1
12 Electrical Engineering—1
13 Drawing & Painting—1
14 Music (Sitar)—1 (leave vacancy)
15 Education (Botany)—1 (Leave vacancy)

III Teaching Assistant (Mechanical Engineering)—1

Pay Scales (Rs) Readers 1200-1900, Lecturers 700-1600, For Teaching Assistant Rs 1000/- (fixed) for graduates in Engineering with atleast 70% marks and Rs 1100 - for postgraduate with 1 Division Allowances as admissible under rules Pay Scales are likely to be revised soon

Note : 1. Prescribed application forms alongwith details of minimum qualifications can be had from the office of the Registrar of the Institute on payment of Rs. 10/- by cash at counter or by sending a bank draft of the required amount accompanied by a self addressed and stamped envelope of the size 22 x 10 cm with stamps worth Re 1/- for ordinary post or Rs. 6/- for registered post.

2. Applications complete in all respects alongwith enclosures and registration fee of Rs. 10/- should reach the Registrar of the Institute latest by 24 May, 1988.

3. All payments be made either by cash at counter or by bank draft drawn in favour of 'DAYALBAGH EDUCATIONAL INSTITUTE' payable at Agra.

4. Separate application be made for each post.

5. The number of posts may vary according to need.

6. Government / Semi-government employees should apply through their employers or produce a no objection certificate at the time of the interview.

7. SC/ST candidates will be preferred if found otherwise suitable.

8. Incomplete applications and those not accompanied by testimonials and/or registration fees will not be considered.

9. It is likely that some of the posts may not be filled-in immediately.

10. Superannuated persons are not eligible for employment.

REGISTRAR

काशी विद्यापीठ, वाराणसी

विज्ञापन संख्या-1/1988-89

दिनांक 4 अप्रैल, 1988

अधोनिर्दिष्ट पदों पर नियुक्ति हेतु निर्धारित प्रपत्र पर आवेदन पत्र आमंत्रित किये जाते हैं :-

1. प्रोफेसर—एक पद—स्वाधी—उपग्रह-शास्त्र—विशेषीकरण—अपराध शास्त्र
वेतनमान : ₹ 4500-150-5700-200-7300

2. रीडर

(1) राजनीतिशास्त्र-एक पद-स्वाधी

(2) बाणिज्य-एक पद-स्वाधी

(3) कम्प्यूटर साइंस एण्ड एप्लीकेशन-एक पद-अस्थायी-परन्तु चलते रहने की सम्भावना है।

वेतनमान : ₹ 3700-125-4950-150-5700

3. लेक्चरर

(1) कन्व-एक पद-अस्थायी-परन्तु चलते रहने की सम्भावना है।

(2) कम्प्यूटर साइंस-एण्ड एप्लीकेशन-दो पद-अस्थायी-परन्तु चलते रहने की सम्भावना है।

वेतनमान : ₹ 2200-75-2800-100-4000

4. सिलाई अभ्यापिका—एक पद-स्वाधी

वेतनमान : ₹ 354-10-424-10-454-12-514-12-550

5. टेक्निकल असिस्टेंट—

कम्प्यूटर साइंस एण्ड एप्लीकेशन-दो पद-अस्थायी-परन्तु चलते रहने की सम्भावना है।
वेतनमान : ₹ 570-25-770-30-980-30-1100

विशेष :—विज्ञापन संख्या 4, 1987-88 के अधीन कुल क्रमांक 2(3)3(2) और 5 पर तथा विज्ञापन संख्या 3/1987-88 के अधीन क्रमांक 3(1) पर उल्लिखित पदों के लिये जो व्यक्ति पहले आवेदन पत्र दे चुके हैं उन्हें पुनः आवेदन करने की आवश्यकता नहीं है।

न्यूनतम अर्हताएं :

क्रमांक 1,2,3 में उल्लिखित पदों की अर्हता निम्नलिखित अभिनियम एवं परिनिबन्ध में विहित योग्यता एवं समय समय पर संशोधित योग्यता के अनुसार होगी।

क्रमांक 4 पर उल्लिखित सिलाई अभ्यापिका पद की न्यूनतम अर्हता इम्प्ट-मोडिफ्ट तथा किसी माय्यता प्राप्त संस्थान से सिलाई, कढ़ाई, नुनाई में डिप्लोमा। अनुभव की महिला को बरीयता दी जायगी।

क्रमांक 5 पर उल्लिखित टेक्निकल असिस्टेंट पद की अर्हता एम० एम० एम० एम० सी० गणित/भौतिक शास्त्र के साथ कम्प्यूटर सिस्टम के संचालन का ज्ञान तथा 3 वर्ष का अनुभव।

सामान्य :

उपयुक्त पदों पर नियुक्त व्यक्तियों को समय समय पर शासन द्वारा स्वीकृत भुत्ताई चले एवं अन्य चले देय होंगे। हिन्दी का ज्ञान आवश्यक है। जो अभ्यर्थी कहीं सेवा में हो उन्हें आवेदन पत्र भजने वर्तमान सेवा योग्यक के माध्यम से भेजना आवश्यक है। प्रत्येक पद के लिये अलग-अलग निर्धारित आवेदन पत्र के साथ अंत वनों, उपाधियों तथा अनुभव प्रमाणपत्रों की प्रमाणित प्रतियों सहित, जिनका उल्लेख निर्धारित आवेदन पत्र पर किया गया हो, "कुलसचिव, काशी विद्यापीठ, वाराणसी-221 002" को इस प्रकार प्रेषित किया जाय कि सोमवार दिनांक 9-5-1988 अथवा उसके पूर्व अवश्य प्राप्त हो जाय। दिनांक 9-5-1988 के पश्चात प्राप्त आवेदन पत्रों पर विचार नहीं किया जायेगा।

निर्धारित आवेदन-पत्र काशी विद्यापीठ के बित्त विभाग के कैशियर के पास ₹ 15 - (इक्के पन्द्रह मात्र) नकद जमा कर प्राप्त किया जा सकता है। बाहर के अभ्यर्थियों को निर्धारित आवेदन पत्र भंगाने हेतु एक आवेदन पत्र के साथ ₹ 15 - (इक्के पन्द्रह मात्र) का बैंक ड्राफ्ट अथवा पोस्टल ऑर्डर को 'बित्त अधिकारी, काशी विद्यापीठ, वाराणसी को देय होगा तथा टिकट एवं पता मित्रा लिफाका (साइज 23 X 10 से०मी०) कुलसचिव, काशी विद्यापीठ, वाराणसी को भेजना आवश्यक है। भनादेश (मनोबांहर) किसी भी दशा में स्वीकार नहीं किया जायेगा।

उपयुक्त पदों के लिये अन्य बातें सामान्य होने पर अनुसूचित जाति या अनुसूचित जनजाति का कोई अभ्यर्थी उपयुक्त पाया जाना है तो उसे बरीयता दी जायगी। जो अभ्यर्थी अनुसूचित जाति अथवा अनुसूचित जनजाति के हों उन्हें आवेदन-पत्र में उसका उल्लेख करना चाहिये तथा जिस विभा के निवासी हो उस विभा के विद्यापीठ का प्रमाणपत्र पृष्ठ हेतु संलग्न करें।

छात्रावास के लिये बुनाने अथवा न बुनाने का अधिकार काशी विद्यापीठ के पास सुरक्षित है।

अधीनस्थ सित
कुलसचिव

S.N.D.T. WOMEN'S UNIVERSITY
1, NATHIBAI THACKERSEY ROAD, BOMBAY-400 020

Advertisement No. 8

Dated : March 25, 1988

Applications are invited in the prescribed forms available at the University Office between 10-30 a.m. to 2-30 p.m. from Monday to Friday and 10-30 a.m. to 12.00 Noon on Saturday, on payment of Rs. 5/- (M.O., Indian Postal Order/in Cash) for the following posts, to be filled in at the University Departments and its conducted Institutions at Bombay and Poona, so as to reach the undersigned on or before fifteen days from the date of its advertisement :

Sr. No.	Post and Name of the Dept. Institution	No. of Post	Post under Reserved Category	Medium of Teaching
A.	SNDT WOMEN'S UNIVERSITY LIBRARY, BOMBAY-20			
1.	Deputy Librarian	ONE TMP	—	—
2.	Senior Library Assistant	ONE PRM	—	—
*3.	Junior Library Assistant	FOUR PRM	ONE	—
		ONE TMP	(first time Adv.)	—
4.	Assistant Accountant	ONE TMP	—	—
	Under Central Equipment Facility Unit, Bombay-20			
5.	Lecturer (Instrumentation)	ONE PRM	—	ENG
	Under Information Centre, Bombay-20 (Tenure upto March 1990)			
6.	Deputy Librarian	ONE TMP	—	—
		TENURE	—	—
7.	Research Assistant	ONE TMP	—	—
		TENURE	—	—
8.	Data Entry Assistant	ONE TMP	—	—
		TENURE	—	—
9.	Typist (with experience in Data Entry Assistant)	ONE TMP	—	—
		TENURE	—	—
*10.	Attendant (with experience in Hardware maintenance)	ONE TMP	ONE	—
		TENURE	(First time Adv.)	—
B	SNDT WOMEN'S UNIVERSITY EXTN. LIBRARY, BOMBAY-49			
1.	Deputy Librarian	ONE PRM	—	—
C	SNDT WOMEN'S UNIVERSITY BRANCH LIBRARY, POONA			
1.	Junior Library Assistant	TWO PRM	—	—
D.	SHPT. SCHOOL OF LIBRARY SCIENCE, BOMBAY-20			
1.	Lecturer in Library Science	TWO PRM	—	—
E.	P.G. DEPT. OF LIBRARY SCIENCE SHPT. SCHOOL OF LIB. SCIENCE, BOMBAY-20			
1.	Reader	ONE PRM	—	ENG

Minimum qualifications, salary scales, etc. of the teachers are as per approved UGC scales and qualifications. Applications of Scheduled Castes/Tribes/Nomadic Tribes/DNT, will be considered as per Government Directives. *Indicates post under reserved category and will be filled by SC/ST/ONT candidates only. Incomplete applications & applications on a plain paper will not be considered.

REGISTRAR

HIMACHAL PRADESH KRISHI VISHVAVIDYALAYA

'Recruitment Branch'

PALAMPUR, HP.

Advt. No. 3/88

Applications are invited for the following posts on the prescribed form obtainable from the office of the undersigned personally or by making written request accompanied by self-addressed envelope 23 x 10 cms bearing stamp of Rs. 6.00. The detailed instructions regarding qualifications and other conditions will be supplied alongwith the application form. The cost of application form for all posts from Sr. Nos. 1 to 25 is Rs. 10/- (Rs. 5/- for SC/ST candidates subject to production of proof therefor) and that for post at Sr. No. 26 is Rs. 5 - (Rs. 2.50 for SC/ST candidates subject to production of proof therefor), which should be sent through IPO(s), payable to Comptroller, HPKV, Palampur at HPKV campus Post Office. The application form duly completed should reach the Registrar, HPKV, Palampur-176 062 (HP) by 9.5.1988. Request for supply of application form without requisite fee shall not be entertained.

Candidates applying from abroad may send their applications on plain paper giving full particulars of date of birth, examinations passed from High school onwards with division and percentage of marks obtained in various examinations, teaching research/extension education experience with a list of publications, if any, so as to reach the Registrar, HPKV, Palampur by 9.5.1988 :

Posts in the Scale of Rs. 1500-2500 (UGC) plus rent free unfurnished residential accomodation at the campus of the University or in lieu thereof an allowance of Rs. 250/- per month :

1. Director of Research (I)
2. Dean, College of Agriculture (I)
3. Dean, College of Veterinary & Animal Sciences (I)

Post in the Scale of Rs. 1500-2500 (UGC) plus rent free unfurnished residential accomodation at the campus of the University :

4. Students Welfare Officer (I)

Post in the scale of Rs. 1500-2500 (UGC) :

5. Professor of Vegetable (I)

**STRUCTURAL ENGINEERING RESEARCH CENTRE
GHAZIABAD (UP)****(COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH)****Advertisement No. 2 88****Security Assistant : 1 Post. Scale Rs. 1640-60-2600-EB-75-2900 (Revised)****Educational Qualifications**

Bachelor's Degree from recognised University (relaxable in Exceptionally deserving Cases) with at least 5 yrs. experience relating to management of Security, Fire Fighting Prevention and allied jobs. Should be able to handle Fire Arms, Ex-Army other para military organisation persons preferred.

Job Requirement : The selected candidate will be required to look after the Security arrangements of the SERC installation, premises, residential site and other residential accommodation of SERC at Ghaziabad and carry out deployment and supervision of Security staff. He will also be responsible for handling and maintenance of Fire Fighting appliances of the Centre.

Age Limit 28 yrs., relaxable in case of SC ST Candidates and Ex-Servicemen as per rules. No age bar for CSIR employees.

Prescribed application form for the above post are obtainable (free of cost) on or before 25.4.1988 from the Administrative Officer SERC Post Bag No 10, Ghaziabad. Request for application forms must indicate the number of advertisement, particulars of the post applied for (speciality and level) and full address of the applicant in block letters with Pin Code alongwith a self addressed envelope of size 28 x 13 cms duly affixed with postage stamps worth Rs 1.80.

Complete application forms alongwith application fee of Rs 8/- (no fees is required in case of SC ST candidates) in the form of Crossed Postal Order drawn in favour of the Director, SERC, Ghaziabad should reach the Administrative Officer, SERC, Post Bag No 10 Ghaziabad by 12.5.1988. Application from employees working in Govt. Deptt. Public Sector Organisation and Govt. funded agencies will be considered only if forwarded through proper channel and with the clear certificate that in the event of selection of the candidate he/she will be relieved within one month of receipt of the appointment order. Incomplete applications as well as those received after the due date are liable to be rejected. Those who are called for interview will be paid travelling allowance to the extent of a single second class return rail fare (Mail or Express) by the shortest route as per rules.

The selected candidate will be liable to serve, if so required, in any defence service or post connected with the defence of India for a period of not less than four years before attaining the age of 40 yrs.

Candidates are required to mention clearly on the application if any of their close relative is working in SERC, Ghaziabad Roorkee and if so, full details thereof.

Since it is not possible to call all the eligible candidates for interview/personal discussion, the applications shall be shortlisted for the purpose and the decision of the SERC in this behalf will be final and binding on all concerned.

CANVASSING IN ANY FORM AND/OR BRINGING IN ANY INFLUENCE POLITICAL OR OTHERWISE WILL BE TREATED AS DISQUALIFICATION FOR THE POST. INTERIM ENQUIRIES WILL NOT BE ATTENDED TO.

Posts in the scale of Rs. 1200-1900 (UGC) :

6. Associate Professor of Home Science Extension Education (1)
7. Associate Professor of Child Development (1)
8. Research Officer (Yak) (1)
9. Associate Professor of Veterinary Anatomy (1)
10. Associate Professor of Veterinary Pharmacology (1)
11. Associate Professor of Veterinary Pathology (1)
12. Associate Professor of Veterinary Gynaecology (1)
13. Associate Professor of Animal Breeding (1).

Posts in the scale of Rs. 700-1600 (UGC) :

14. Assistant Professor of Microbiology (1)
15. Assistant Professor of Extension Education (1)
16. Assistant Professor of Agricultural Engineering (1)
17. Assistant Scientist of Maggar Bamboo (1)
18. Assistant Scientist of Agro-Meteorology (1)
19. Assistant Vegetable Breeder (1)
20. Assistant Professor of Veterinary Physiology (1)
21. Assistant Professor of Veterinary Parasitology (1)
22. Assistant Scientist of Yak Genetics (1)
23. Assistant Farm Manager (Dairy Farm) (1)

Post in the scale of Rs. 700-1300 (UGC) :

24. Assistant Scientist (Fisheries) (1)
25. Press Manager (1)

Post in the scale of Rs. 510-880 + Rs. 30 —S.P. (State scale)

26. Junior Scale Stenographers (English/Hindi) (9) Reservation SC—4, SC (IRDP)—1, S.T.—1, ST (IRDP)—1, Ex-Serviceman (IRDP)—1 & General—1.

Applications complete in all respects, with attested copies of testimonials and list of publication, etc. should reach the Registrar, HPKV, Palampur-176 062 (HP) by 9.5.1988.

**R C. Kapil
REGISTRAR**